

7-Ag 8' 3:147

O. E. S. LIBRARY. COP. 2

CONN  
S  
43  
.E22  
no. 147

# CONNECTICUT AGRICULTURAL EXPERIMENT STATION

NEW HAVEN, CONN.

BULLETIN 147, JANUARY, 1905.

## Commercial Feeding Stuffs now in the Connecticut Market.

### CONTENTS.

	Page
Law regarding Feeding Stuffs .....	3
Collection of Samples .....	3
Explanations regarding Analysis .....	4
Discussion of Analyses .....	7
Cotton Seed Meal .....	7
Linseed Meal .....	9
Wheat Products: Bran, Middlings and Mixed Feed .....	10
<i>Spurious Mixed Feed</i> .....	14
Maize Meal .....	15
Gluten Meal and Gluten Feed .....	16
Hominy Feed .....	18
Rye Feed, Brewery and Distillery Products .....	19
Oats .....	21
Miscellaneous Mixed Feeds .....	21
Proprietary Horse, Dairy and Poultry Feeds .....	23
Animal Meals .....	25
Apple Pomace .....	26
Dried Molasses Pulp .....	26
The Digestibility of Feeding Stuffs .....	26
Regarding the Purchase of Feeding Stuffs .....	28
Average Composition of the Feeds in the Connecticut Market .....	30
The Weight of one Quart of Various Feeds .....	31
Table of Analyses .....	32

The Bulletins of this Station are mailed free to citizens of Connecticut who apply for them, and to others as far as the editions permit.

# CONNECTICUT AGRICULTURAL EXPERIMENT STATION.

## OFFICERS AND STAFF.

### BOARD OF CONTROL.

His Excellency, HENRY ROBERTS, *Ex officio*, President.

PROF. W. O. ATWATER ..... Middletown.  
PROF. W. H. BREWER, *Secretary* ..... New Haven.  
B. W. COLLINS ..... Meriden.  
T. S. GOLD ..... West Cornwall.  
EDWIN HOYT ..... New Canaan.  
J. H. WEBB ..... Hamden.  
E. H. JENKINS, *Director and Treasurer* ..... New Haven.

### STATION STAFF.

#### *Chemists.*

##### *Analytical Laboratory.*

A. L. WINTON, PH.D., *Chemist in charge.*

E. MONROE BAILEY, PH.B. I. A. ANDREW, PH.B.  
KATE G. BARBER, B.S.

##### *Laboratory for the Study of Proteids.*

T. B. OSBORNE, PH.D., *Chemist in charge.*  
I. F. HARRIS, M.S. R. D. GILBERT, PH.D.

#### *Botanist.*

G. P. CLINTON, S.D.

#### *Entomologist.*

W. E. BRITTON, PH.D.

##### *Assistant to the Entomologist.*

B. H. WALDEN, B.AGR.

#### *Forester.*

WALTER MULFORD, F.E.†

##### *In charge of Forestry Work.*

AUSTIN F. HAWES, M.F.

#### *Grass Gardener.*

JAMES B. OLCOTT, *South Manchester.*

#### *Stenographers and Clerks.*

MISS V. E. COLE.

MISS L. M. BRAUTLECHT.

##### *In charge of Buildings and Grounds.*

WILLIAM VEITCH.

#### *Laboratory Helper.*

HUGO LANGE.

#### *Sampling Agent.*

V. L. CHURCHILL, New Haven.

† Absent on leave.

## COMMERCIAL FEEDING STUFFS.

---

### THE LAW REGULATING THEIR SALE.

Section 4591 of the general statutes of Connecticut so defines the term "concentrated commercial feeding stuff" that it covers practically all feeds *excepting the following*:—hay and straw, whole seeds, unmixed meal made directly from any one of the cereals or from buckwheat, and feed ground from whole grain and sold directly from manufacturer to consumer.

Section 4592 requires that every package of concentrated commercial feeding stuff shall bear a statement giving the name and address of manufacturer or importer, the number of net pounds in the package, the name of the article and the percentages of protein and fat contained in it.

Section 4593 requires every manufacturer, importer, agent or seller to file with this station, upon request, a certified copy of the statement above described.

The penalty prescribed for violation of the foregoing sections is not more than \$100 for the first offense and not more than \$200 for each subsequent offense.

Section 4595 authorizes this station to take samples from any manufacturer, importer, agent or dealer in a prescribed fashion and requires this station to analyze, annually, at least one sample of each brand which it has collected and to publish these analyses in station bulletins, "together with such additional information in relation to the character, composition and use thereof as may be of importance."

The dairy commissioner is charged with the enforcement of the provisions of these sections of the statutes.

In compliance with the requirements of this law the following report on feeding stuffs has been prepared.

### SAMPLING OF COMMERCIAL FEEDING STUFFS.

During the fall of 1904, Mr. V. L. Churchill, the sampling agent of this station, visited fifty-six towns and villages of this state and took three hundred and thirty-seven samples of

feeds in the way prescribed by law. These samples have been examined chemically and microscopically and the results appear in the following pages with appropriate discussion.

There are also given thirty-three analyses of feeds which were sent to the station for analysis by individuals. Seven other samples of feeds have been sent for microscopic examination by other stations.

To make it easier to understand these analyses and their discussion, the following explanations are prepared:—

### EXPLANATIONS OF ANALYSES OF FEEDING STUFFS.

An analysis gives the percentage amounts of Water, Ash, Protein, Fiber, Nitrogen-free Extract, and Fat.

*Percentage Amount* is the amount in 100. If the protein in a feed is 17.5 per cent., every 100 pounds of that feed contains 17.5 pounds of protein; and since a ton is twenty hundred pounds, a ton of the feed will contain twenty times 17.5, or 350 pounds of protein.

*Water.* However dry a feeding stuff appears to be, it always contains a considerable and variable quantity of water which cannot be seen or felt, but which can be driven out by heat. The amount of water thus present in feeding stuffs is constantly changing with the temperature and moisture content of the air about them, and accordingly no very close comparison of different feeds is possible unless the proportions of water they contain are known and comparison is made on perfectly dry or water-free substance.

*Ash* is what is left when the combustible part of a feeding stuff is burned away by heating to faint redness in a current of air. Besides sand, usually an accidental impurity, the ash consists chiefly of lime, magnesia, potash and soda, combined with chlorine and carbonic, sulphuric and phosphoric acids.

*Protein* is a general term which, as used in this bulletin, includes all the nitrogenous materials of a concentrated feeding stuff, whatever their character may be. In such feeds the protein substances for the most part bear a general resemblance in composition and properties to the animal proteins, egg albumin (white of egg), flesh fibrin (lean meat), and milk casein (curd). It is from this protein of the food alone that the animal can

make albumin, fibrin and casein. The nitrogenous materials are the most costly and the most valuable ingredients of concentrated commercial feeds, which should be bought chiefly for the protein which is in them.

*Nitrogen-free Extract*, sometimes called *Carbohydrates*, includes starch, gum, sugar and pectin bodies. They are readily extracted from the feeding stuff by water and dilute acid.

*Fiber* is the essential constituent of the walls of vegetable cells and is seen in a nearly pure state in cotton fiber or paper pulp. It is the most insoluble part of the vegetable substance and of subordinate value in the ration.

*Ether Extract* includes fat oil, solid fat, wax, chlorophyl (the green coloring matter of plants), and other coloring matters, in brief everything which can be extracted from the perfectly dry feeding stuff by absolute ether.

Regarding the uses of the above-named parts of feeds:

*Water* and *ash* need not be considered, for, while indispensable to stock, both are abundantly supplied in other ways than in commercial feeds.

*Protein* is an essential ingredient of the food of every animal, because from no other substance can the waste of muscles, tendons and the working tissues and membranes be renewed: nor can the casein of milk, the albumin and other constituents of the egg, nor new body substance of any sort be obtained by the animal from any other source than protein. The necessary elements from which the animal organism constructs these substances are yielded in available form only by protein. Without protein the animal can live but a short time.

*Fiber* and the *nitrogen-free extract*, on the other hand, cannot serve for building up the muscles and other parts of the growing animal and cannot directly restore the waste and wear of those parts of mature animals, because they are of a very different nature. They contain no nitrogen, an element which enters into all the animal tissues (proteins), to the extent of some sixteen per cent. of their dry matter.

*Fiber* and the *nitrogen-free extract* cannot restore the worn-out muscles or membranes of the animal any more than coal can be made to renew the used-up packing, bolts, valves, flues and gearing of a steam-engine. Proteins are to the ox or the man what brass and iron are to the machine, the materials of construction and repair.



But *fat, fiber and nitrogen-free extract* are to the animal very much what coal and fuel are to the steam-engine. Their consumption generates the power which runs the mechanism. Their burning (oxidation) in the blood of animals produces the results of life just as the combustion of coal in the fire-box of the steam-engine produces the motion and power of that machine. For this combustion in the system, digestible fat has more than twice the value of digestible nitrogen-free extract.

There is, however, this difference between the engine and the animal: the former may be stopped for repairs; the latter may run at a low rate, but if it be stopped it cannot resume work. Hence the repairs of the animal must go on simultaneously with its wastes. Therefore, the material of which it is built must admit of constant replacement, and the dust and shreds of its wear and tear must admit of escape without impeding action. The animal body is as if an engine were fed not only with coal and water, but with iron, brass and all the materials for its repair, and also is as if the engine consumed its own worn-out parts, voiding them as ashes or as gas and smoke. Proteins, or the blood- and tissue-formers, are thus consumed in the animal, as well as the fat, fiber and nitrogen-free extract or fuel proper. The fact that proteins admit of consumption implies that when the proper fuel is insufficient, they may themselves serve as fuel. Such is the case, in fact. But, nevertheless, the two classes of substances have distinct offices in animal nutrition, and experience has proved that for each special case of animal nutrition a special ratio of digestible proteins to digestible fat, fiber and nitrogen-free extract is the best and most economical, and, within certain limits, is necessary.

## THE USES OF ANALYSES OF FEEDING STUFFS.

These uses are several. First, by an analysis compared with the average of others, any buyer of a feed can see whether it is of the usual quality. Thus on page 32, the analysis of cotton seed meal, No. 13047, compared with the average of seventeen analyses given on the same page, shows that its quality is far below average as regards protein, the most valuable ingredient.

Secondly, by an analysis compared with the manufacturer's guaranty the buyer can see whether in composition the feed meets what is claimed for it. Thus on page 41 the analyses of Chicago gluten meal show that the feed contains on the average about 4 per cent. less of protein than is called for by the manufacturer's guaranty.

Thirdly, an analysis often shows clearly whether or not the feed is adulterated and may indicate also the form of adulteration. This use is fully illustrated by the discussion of adulterated wheat feed on page 14 of this report.

It also makes clear the composition of mixtures which are sold under names which either convey no meaning or convey a false impression.

Fourthly, comparison of analyses of a number of kinds of feed with their prices will greatly help in deciding whether any one of them is worth to the feeder what is asked for it. Too often the prices of feeds bear no relation to their real feeding value.

Lastly, the chief use of these tables by feeders should be as a guide to the skillful compounding of rations for farm animals. How this is done cannot be briefly explained within the limits of a bulletin. A knowledge of the principles of cattle feeding is essential, which should be gathered by studying books which treat of the principles of cattle-feeding and of the art of compounding rations.

## DISCUSSION OF THE ANALYSES.

The microscopical and chemical work in connection with these analyses has been done under Dr. Winton's direction, and with the coöperation of Messrs. Bailey and Andrew and Miss Barber; the results have been prepared for publication and discussed by the director.

### COTTON SEED MEAL.

Analyses on pages 32 and 33.

After ginning and linting to remove the fiber, the hulled and ground cotton seed is pressed to obtain cotton seed oil. Cotton seed meal is made by grinding the hard cakes from which the oil has been expressed. All of the samples examined this year

have the guaranty required by law, and only the following samples fail to meet their guaranties by more than 0.7 per cent. of protein.

	Guaranteed.	Protein. Found.
American Cotton Oil Co., England Mill .....	43.0	42.2
“ “ “ Argenta “ .....	43.0	41.9
Chapin & Co., Green Diamond brand .....	43.0	41.4
Hunter Bros. Milling Co. ....	43.0	37.5

Sample 13047, from Hunter Bros. Milling Co., St. Louis, contains an excessive amount of hulls and is neither choice nor prime meal.

By the rules of the Cotton Seed Crushers Association, “choice” meal must contain at least 8 per cent. of ammonia, equivalent to 41.19 per cent. of protein, and “prime” meal must contain at least 8 per cent. of ammonia, or if from the South Atlantic States  $7\frac{1}{2}$  per cent. of ammonia, equivalent to 38.62 per cent. of protein.

The average percentages of protein and fat, as determined at this station, and the average prices, quoted by retailers, at the time the samples were drawn, have been as follows for the last six years:

	1899	1900	1901	1902	1903	1904
No. of Samples .....	10	4	6	8	25	17
Percentage of protein ..	46.4	43.9	44.4	43.0	43.2	43.4
“ “ fat .....	10.4	8.6	9.8	10.3	9.2	9.6
Average price .....	\$24.00	27.00	28.80	29.70	29.04	28.88

The average price in 1904 has been a little lower than in the years 1902 and 1903, and the average percentage of protein a little higher.

*Cotton Seed Meal, sampled and sent by Purchasers.*

11539. Sold to R. H. Ensign, Simsbury, by the American Cereal Co., contained 38.12 per cent. protein and 8.58 per cent. fat; 43 per cent. protein was guaranteed. 11315, light meal, and 11314, dark meal, sold to T. A. Stanley, New Britain, by Chapin & Co., Boston, contained respectively 43.50 and 38.80 per cent. of protein.



## LINSEED MEAL.

Analyses on pages 32 and 33.

"Linseed Meal," "Oil Meal," and "Flax Seed Meal" are trade names for ground flax seed from which more or less of the oil has been removed. By the "old process" the oil is partly removed by pressure, leaving, however, from 5 to 10 per cent. of oil, "fat," in the meal. By the "new process" the oil is so far extracted with naphtha as to leave, usually, less than 2½ per cent. in the meal. New process meal is more uniform in composition and contains more protein than old process meal.

The following brands fail to meet the manufacturer's guaranty by more than 0.7 per cent. of protein:

	Guaranteed.	Protein, Found.
American Linseed Co.'s Flax Meal.....	38.5	35.1
" " New Process Linseed Meal..	38.0	36.0
Hunter Bros., Old Process Linseed Meal.....	34.0	31.8
Midland Linseed Co., Old Process Linseed Meal...	32.0	30.6

All the samples of each kind analyzed this year have been of fair quality and unadulterated. The average percentages of protein and fat found in linseed meal for the last four years, as determined at this station, with the average prices at the time the samples were drawn, as quoted by retailers, are as follows:

	New Process.				Old Process.			
	1901	1902	1903	1904	1901	1902	1903	1904
No. of Samples .....	3	4	2	3	4	6	9	11
Percentage of protein..	39.0	39.8	36.4	36.2	34.4	32.8	33.1	33.8
" " fat .....	1.8	2.1	3.2	3.1	7.7	7.8	7.5	7.1
Average price.....	\$30.60	31.00	32.50	28.33	30.50	32.00	30.77	31.45

A guaranty of 38 per cent. protein is quite too high for the quality of new process meal which has come into the state in the last two years.

New process meal at \$27 to \$28 per ton deserves more attention from feeders.

The retail prices quoted on both feeds are based on very small sales. Car lots are quoted at this writing at about \$2 per ton higher than cotton seed meal.

Heavy demand for export drove up this price of old process meal at about the time the samples were drawn.

## WHEAT PRODUCTS.

These are by-products in the manufacture of wheat flour. Several different processes of milling are in common use, yielding by-products which are not alike in composition. The products made from winter wheat also differ in composition from those from spring wheat.

Wheat Bran consists of the outer layers of the wheat berry, which are dark in color and do not easily pulverize.

Wheat Middlings, as found in the feed market, consist of inner layers of the covering of the berry, which are lighter in color and more easily pulverized than bran, and of other parts from which fine white flour cannot be made.

Red Dog Flour is the poorest grade of flour; off color, containing bran dust and often sold as a cattle food.

Many mills do not sell bran and middlings separately, but run them together, often with other waste wheat products, and sell the mixture as "Mixed Feed."

With few exceptions the samples of wheat feed described in the tables of analyses are not accompanied, as is required by law, with any statements of composition.

*Bran from Winter Wheat.*

Analyses on pages 34 and 35.

None of the lots sampled has the guaranty of composition which is required by law.

Three of the samples contain less than 14 per cent. of protein, and in so far are of inferior feeding value, but examination does not reveal any evidence of adulteration.

*Bran from Spring Wheat.*

Analyses on pages 34 and 35.

None of the lots of spring wheat bran examined bears the guaranty required by the state law.

The New Prague flaky bran, 13228, the Star and Crescent bran, 12977, and the Washburn-Crosby bran, 13136, contain less than 14 per cent. of protein and are, in so far, inferior in feeding value, but there is no evidence that they are other than

pure wheat bran. With these exceptions the samples are all of fair quality.

*Middlings from Winter Wheat.*

Analyses on pages 34 and 35.

None of the lots examined has the guaranty which is required by the state law. All the samples are of fair quality.

*Middlings from Spring Wheat.*

Analyses on pages 34-37.

None of the lots examined has the guaranty which is required by the state law. All of the samples are, however, pure and of good quality, as far as is indicated by chemical composition.

*Mixed Feed from Winter Wheat.*

Analyses on pages 36-39.

Of the forty-two lots examined, only two have the guaranty which is required by law; numbers 13121 and 13159, made by the American Cereal Co. The guaranty in each case was 17.75 per cent. of protein, and each sample contained 15.62 per cent.

All of the samples are apparently pure and of fair quality.

*Mixed Feed from Spring Wheat.*

Analyses on pages 38 and 39.

Of the fourteen lots examined, the only one bearing a guaranty, as required by the state law, is 13287, Brooks Elevator Co.'s Royal Mixed Feed, in which are guaranteed 16.61 per cent. of protein and 5.48 per cent. of fat. The sample analyzed fully meets this guaranty.

All the samples are apparently pure and of fair quality.

*Average Composition of the Various Pure Wheat Products.*

The average composition of the various pure wheat feeds sold in Connecticut in the last six years, with their prices, as given by retailers, appears in the following table:

AVERAGE COMPOSITION AND PRICE OF WHEAT FEEDS IN CONNECTICUT,  
1899 TO 1904.

1899	Bran.		Middlings.		Mixed Feed.	
	Winter.	Spring.	Winter.	Spring.	Winter.	Spring.
Protein.....	15.9	15.6	15.8	15.6	16.8	16.8
Fat.....	4.3	4.7	4.4	4.7	4.5	5.1
Ton price.....	\$19.80	19.14	19.00	19.25	19.44	19.25
1900						
Protein.....	16.1	16.5	17.7	19.1	18.1	17.6
Fat.....	4.6	5.0	4.7	5.5	4.7	5.3
Ton price.....	\$21.09	20.00	21.00	21.50	21.00	20.80
1901						
Protein.....	16.3	17.3	18.0	19.7	17.5	18.5
Fat.....	4.5	4.7	5.0	5.5	4.7	5.1
Ton price.....	\$21.80	21.06	22.75	22.10	22.20	22.20
1902						
Protein.....	17.1	16.7	18.1	19.2	17.7	17.7
Fat.....	4.6	4.9	4.4	5.4	4.6	5.1
Ton price.....	\$23.37	20.90	23.85	23.44	22.00	22.35
1903						
Protein.....	15.5	15.9	16.4	17.9	16.7	16.9
Fat.....	4.5	4.9	4.5	5.0	4.5	5.0
Ton price.....	\$23.00	22.50	25.55	25.50	23.55	23.53
1904						
Protein.....	15.0	15.5	16.5	17.1	16.0	16.3
Fat.....	4.4	4.7	4.6	5.0	4.5	4.7
Ton price.....	\$26.13	24.57	28.14	26.60	25.83	26.07

This table indicates that:

1. The spring wheat products, as a rule, have somewhat higher percentages, both of protein and fat, than the winter wheat products.
2. This difference is rather more pronounced and constant in the case of middlings than in that of either bran or mixed feed.
3. The percentages of protein in bran are rather lower than in either middlings or mixed feed.
4. On the average the winter wheat products sell at a slightly higher price than the spring wheat products in spite of the higher protein and fat content of the latter.
5. The percentages of protein in all the wheat feeds have been considerably lower in 1904 than in either of the three years immediately preceding. The prices have, however, ruled higher.

The spring wheat products just analyzed represent for the most part the crop of 1903, while winter wheat products are, probably, of the 1904 crop. This last crop is stated to have been of poor quality.

### *Guaranties.*

Attention is again called to the fact that the state law requires that wheat feeds should have affixed to the packages a guaranty or statement of the percentages of protein and fat in the feed. This law is almost universally disregarded by manufacturers and by the jobbers and retailers in Connecticut.

It has been urged that wheat feeds are staple articles, uniform in composition and not adulterated and therefore that no guaranty is needed. But our analyses show that these feeds vary decidedly in composition from year to year and that there is considerable fraud in the sale of mixed feed. If the buyer can get no guaranty that his wheat feeds are of standard quality and if they are commonly adulterated, he must drop them for the gluten feeds and dried brewers and distillers grains, which are more constant in composition and with which a guaranty is given.

### *Wheat Feeds sampled by Purchasers.*

13358. Bran from Fairlea Farm, Orange.  
 11302. Columbia Mixed Feed from Fairlea Farm, Orange.  
 11570. Monogram Mixed Feed. Said to be a blend of spring wheat middlings, bran and flour. Taylor & Hubbell, Newtown.  
 11571. Carter Winter Mixed Feed, Taylor & Hubbell, Newtown.  
 12993. Wheat Feed sent by C. H. Clark, Durham.

### ANALYSES.

	13358	11302	11570	11571	12993
Water.....	9.79	7.43	9.66	9.35	----
Ash.....	6.06	4.16	----	----	----
Protein.....	14.62	16.13	17.50	18.19	15.50
Fiber.....	9.53	6.73	----	----	----
Nitrogen-free Extract (starch, sugar, etc.).....	55.08	60.38	----	----	----
Ether Extract (fat) .....	4.92	5.17	5.16	4.62	----
	100.00	100.00			



*Wheat Feed containing Stinking Smut.*

Sample 12993 was sent with the note that the cows would not eat it. The protein determination showed that it had the average amount, but Dr. Winton found, on microscopic examination, a large number of smut spores, identified by Dr. Clinton as those of the stinking smut of wheat. This, no doubt, explains the refusal of the cows to eat it. The smut is not distinctly poisonous to cattle, but they often refuse feed containing it.

*Spurious "Mixed Feeds," made by the Indiana Milling Co. of Terre Haute, Indiana.*

Two samples of so-called "Indiana Mixed Feed, Winter Wheat," were drawn by our agent; one, 13247, from stock of L. C. Daniels Grain Co., Hartford, bought of J. H. Cressey & Co. of Boston; the other, 13004, from Abner Hendee, New Haven. No guaranty or statement of composition was given with them or attached to the bags. They have the following composition:

	ANALYSES OF SPURIOUS MIXED FEED.		Average Composition of Genuine Mixed Feed from Winter Wheat.
	13247	13004	
Water.....	9.31	10.81	10.73
Ash.....	4.67	4.43	5.58
Protein.....	12.12	11.62	16.03
Fiber.....	14.96	14.69	7.76
Nitrogen-free Extract (starch, sugar, etc.)..	55.46	55.33	55.41
Ether Extract (fat).....	3.48	3.12	4.49
	100.00	100.00	100.00
Price charged per ton .....	\$27.00	\$25.00	\$25.83

The above are made up of mixed feed,—a term everywhere used in the trade to denote a mixture of wheat products only—and ground corn cobs, a material of greatly inferior feeding value.

The analyses show that they contain, on the average,  $4\frac{1}{4}$  per cent. less of protein and nearly twice as much fiber as genuine winter wheat feed, and are sold at retail at a higher average price than winter mixed feed.

*Maize Meal.*

Analyses on pages 40 and 41.

Only two samples of maize meal were found on sale in the places visited by our agent. They are called, respectively, A Meal and B Meal, made by the Buffalo Cereal Co., and sold without guaranty.

The B Meal contains 2 per cent. more protein and 4 per cent. more of fat than the A Meal.

No. 11305, yellow corn meal, sampled and sent by C. Daniel Way, Gilead, contains 9.31 per cent of protein.

No more important subject connected with dairy farming can engage the efforts of farmers and of this station than the improvement of our corn crop, both in yield and in quality. Before the silo came in as a necessary part of the dairy equipment and before the feeding value of corn fodder and stover was generally recognized,—corn being raised chiefly for the ears,—we had in this state many varieties of flint corn, which were perfectly hardy, had been bred with more or less skill for very many years, and yielded shelled corn much richer in protein than we can buy to-day. Corn meal with some bran was the staple feed for cows. With the coming of the silo we have sought after varieties which would give the largest possible yield of “roughage,” stalks and leaves, and these appeared to be the southern and western dents. Our smaller flints have been neglected. The cold summer of 1903 was disastrous to the corn crop and it is believed that many farmers finally lost their crop of seed of these proved but somewhat neglected flint varieties, in that year. Are we not in danger of parting with a birthright in letting these flint varieties slip away from us?

While we are seeking to establish some leguminous crop to supply the present lack of protein on the farm, we need also to breed some of these flint varieties, naturally rich in protein, to a still larger production of protein and also of stover.

The classic work of Hopkins and others at the Illinois Station has shown that this is quite possible and has shown how to accomplish it.

Starting with some one of our well-established flint varieties of early maturity, in which it would not be difficult probably now to select ears bearing kernels with 12 to 13 per cent. of

protein, we may hope to secure an increase of several per cent. in the average protein content of our crops of shelled corn.

Such a gain would be of immense advantage to stock feeders and particularly to those who still abide by corn meal as the principal grain feed, along with wheat feed, and look with suspicion on all concentrated "forcing" feeds.

This station has taken up this, together with the other question of increasing the yield of stover, in continuation of the work on the corn crop which it has done in past years.

### *Corn Flour.*

Analyses on pages 40 and 41.

A single sample of this article, sold without guaranty, contains only 5.75 per cent. of protein, and 77.65 per cent. of extract, which is chiefly starch.

### *Gluten Meals.*

Analyses on pages 40 and 41.

Two brands only were found.

*Chicago Gluten Meal*, made by the Glucose Sugar Refining Co., is guaranteed to contain 38.0 per cent. of protein and 3.0 per cent. of fat. The average percentages of protein and fat found are 33.83 and 3.74 respectively.

The amount of protein in the meal is 4 per cent. less than is guaranteed to be there.

*Cream Gluten Meal*, made by the Illinois Sugar Refining Co., is guaranteed to contain 35.5 per cent. of protein, and 3.0 per cent. of fat. The average percentages of these ingredients found are 34.87 and 3.69 respectively, so that the meal fairly meets the claims made for it as regards composition.

### *Gluten Feed.*

Analyses on pages 40-43.

Six different brands of this feed have been examined.

*Buffalo Gluten Feed*, made by the Glucose Sugar Refining Co. of Chicago, contains 22.97 per cent. of protein and 2.89 per cent. of fat, as the average of seventeen analyses, in which the protein ranges from 19.50 to 25.56, and the fat from 2.29

to 4.21 per cent. The percentages guaranteed are 27 to 28 of protein and 3 of fat. No single analysis shows as much protein as the minimum guaranty, and only five of the eighteen contain the guaranteed amount of fat.

The same discrepancy between guaranty and composition appeared last year and was then explained as probably due to the greater amount of white corn used last year in the glucose manufacture, which caused an unexpected fall in the protein content. This might serve as an excuse last year, but it is not easy to see any excuse for the continued putting on the market of a feed which does not in any case meet the representations and claims of the manufacturer. Otherwise the Buffalo feed is pure and of good quality, as far as can be judged from chemical analysis.

*Buffalo Gluten Feed.* Sampled and sent by purchasers.

11540, car lot bought of Glucose Sugar Refining Co., sent by F. W. Holmes, Chapinville.

11572, bought of C. W. Keeler, Danbury.

11573, from Taylor & Hubbell, Newtown.

13359 and 13419, samples of same car lot bought of Abner Hendee, New Haven, by W. H. Lee, Fairlea Farm, Orange.

## ANALYSES.

	11540	11572	11573	13359	13419
Water.....	----	10.57	8.86	9.05	----
Ash.....	----	----	----	1.02	----
Protein .....	20.19	22.25	23.75	22.12	22.25
Fiber .....	----	----	----	7.95	----
Nitrogen-free Extract (starch, sugar, etc.).....	----	----	----	57.48	----
Ether Extract (fat) .....	2.03	1.82	2.17	2.38	----
				100.00	

*J. H. Gluten*, sold by the Buffalo Mill and Elevator Co., is sold without the guaranty which is required by law, and is of lower grade than any other brand of gluten feed found this year in the Connecticut market.

*Globe Gluten Feed*, made by the N. Y. Glucose Co., contains an average of 26.75 per cent. protein and 3.33 per cent. fat, as determined by analyses of fifteen samples. Some of the samples bear a guaranty of 27 per cent. protein and 3 of fat,

others of 26 and 2.5. All the samples fully meet this lower guaranty, and all but three substantially meet the higher guaranty.

*Pekin Gluten Feed*, made by the Illinois Sugar Refining Co., does not meet the guaranty of protein by  $1\frac{3}{4}$  per cent.

*Queen Gluten Feed*, made by the National Starch Co., has a guaranty of 25 per cent. of protein and 2.9 per cent. of fat. The single analysis does not meet this guaranty in either particular.

*Warner's Gluten Feed*, made at Waukegan, Ill., is sold without the guaranty which is required by law.

The average composition of the brands of gluten feed, as determined by our analyses, is given in the following statement, together with the manufacturers' guaranties:

No. of Analyses.	Name.	Price.	Protein.		Fat.	
			Found.	Guaranty.	Found.	Guaranty.
17	Buffalo .....	\$25.68	22.97	27	2.89	3.0
1	J. H. Gluten ....	22.00	17.06	--	3.13	--
15	Globe Gluten...	25.80	26.75	27	3.33	3.0
1	Pekin .....	27.00	26.25	28	3.46	3.0
1	Queen .....	27.00	22.12	25	2.25	2.9
1	Warner's .....	28.00	23.37	--	2.50	--

A sample of gluten meal, 11150, sent by R. G. Davis, New Haven, stated to be made by the J. E. Hubinger Co., Keokuk, Ill., and to contain 24.60 per cent. of protein and 1.70 of fat, contains 19.12 per cent. of protein.

### *Germ Meal.*

A single sample, No. 11680, sampled and sent by F. B. Newton, Plainville, bought of W. T. Reynolds, Poughkeepsie, contains 20.56 per cent. of protein and 14.66 per cent. of fat.

### *Hominy Meal, Hominy Chop.*

Analyses on pages 42-45.

This by-product, in part from hominy mills, but chiefly from breweries, is quite popular with dairymen.

*American Hominy Co.'s Hominy Feed* has a guaranty of 10 per cent. protein and 7 per cent. fat. The average percentages, of two analyses, are 10.3 and 8.4 respectively.



*Buffalo Cereal Co.'s Hominy Feed* has a guaranty of 10.5 protein and 8.5 fat. The average percentages found in six analyses are 10.02 and 7.39 respectively.

*Chapin & Co.'s Niagara Hominy Chop*, one analysis, fully meets its guaranty.

*Chapin & Co.'s Green Diamond Hominy Chop*, two analyses, is not far below the guaranty in composition.

*Chas. M. Cox Co.'s Wirthmore Hominy Feed* contains, as an average of seven analyses, 10.39 per cent. of protein and 8.01 per cent. of fat. The guaranty on some lots is 10 and 7, on others 10½ and 7½. In all cases the protein guaranty is substantially met. In two cases the percentage of fat is somewhat low.

*Hunter Brothers Milling Co.'s Hominy Feed* is guaranteed 11.0 per cent. of protein and 7.7 of fat. The average of the two samples examined is 10.68 protein and 8.58 fat.

*Miner-Hilliard Milling Co.'s Steam Cooked Star Chop* has a guaranty of 9 per cent. protein and 6 per cent. fat, and one lot has a guaranty of 10 per cent. protein and 7.5 of fat. The average of five analyses is 10.3 per cent. of protein and 6.58 per cent. of fat.

*W. W. Payne & Sons Hominy Chop* has a guaranty of 11 per cent. protein and 8 per cent. fat. The average composition, calculated from four analyses, is 10.84 per cent. protein and 7.7 per cent. fat.

The average of all the thirty-seven analyses made on samples drawn in the late fall of 1904 is 10.3 per cent. of protein and 7.6 per cent. of fat.

#### *Hominy Meal sent by Purchasers.*

Two samples, Nos. 11303 and 11304, the one marked S and the other W, sampled and sent by C. D. Way, Gilead, contains 10.81 and 10.25 per cent. of protein respectively.

#### *Rye Feed.*

Analyses on pages 46 and 47.

This material is sold without the guaranty required by the feed law. All the samples appear to be pure and of fair quality, with the single exception of 13087, which has more nearly the composition and appearance of rye flour than of rye feed.

*Malt Sprouts.*

Analyses on pages 46 and 47.

Four analyses are given in the table. None of the lots of this feed has the statement of guaranty which is required by law.

No. 13021 has a low percentage of protein, due probably to admixture of malt and oats.

*Dried Distillery Grains.*

Analyses on pages 46 and 47.

This is the residue left from cereals from which most of the starch has been extracted by treatment with malt and washing. What is left after this treatment is dried and sold as a cattle food. While the cereal grains contain not more than 10 to 12 per cent. of protein, the dried distillery grains contain three times that amount.

The question is frequently asked regarding this material, and the gluten meals and feeds,—How can a part of a grain contain more protein than the whole of it? It cannot, of course, contain more *pounds* of protein, but it often contains a higher *percentage* of protein. An illustration may make this clear. Suppose we have a grain containing 74 per cent. of starch, 10 of protein, 10 of water and 6 of other matters, and by a chemical process we remove from it one-half of the starch and leave the residue as dry as before.

The operation will run as follows:

	In the grain originally.		Taken out.	Left in the residue.	
	Weight. Pounds.	Per cent.		Weight. Pounds.	Per cent.
Starch .....	74	74	37	37	62.2
Protein .....	10	10	--	10	17.3
Water .....	10	10	4.14	5.86	10.0
Other Matter....	6	6	--	6	10.5
	<hr/> 100	<hr/> 100	<hr/> 41.14	<hr/> 58.86	<hr/> 100.0

By comparing the sum of the weights in the third and fourth columns it appears that nothing has been lost from or added to the hundred pounds of grain.

After removing the starch, the by-product or residue only weighs in this case a little over 58 pounds. It contains, however, all of the protein which was in 100 pounds of grain

originally. It is clear that if the protein from 100 pounds of grain is gathered into a product which weighs only 58 pounds, then this product, *pound for pound*, will contain more protein than the original grain. This is equivalent to saying that it has a higher percentage, as appears above. The grain contains 10 per cent., but the by-product contains 17.3 per cent.

*Ajax Flakes*, sold by Chapin & Co., is the only brand of distillery grains which has been found this year in the state. It consists mainly of a corn product with some barley.

The average percentages of protein and fat found in the four samples examined are 32.09 protein and 14.13 fat. The former is about 1 per cent. below the guaranty, the latter is about 2 per cent. higher than the guaranty.

#### *Dried Brewers Grains.*

A single sample of this feed, No. 11538, sent by W. O. Burr, Fairfield, had the following composition:

Water.....	8.69
Ash.....	3.54
Protein .....	26.94
Fiber .....	12.75
Nitrogen-free Extract (starch, sugar, etc.) .....	39.63
Ether Extract (fat) .....	8.45
	<hr/>
	100.00

#### *Ground Oats.*

Analyses on pages 46 and 47.

One sample of ground oats, 13058, has the usual composition, and is of average quality.

The sample of "Oat Feed" is a mixture of oats and oat hulls of very inferior value and sells for \$18.00 per ton.

#### *Miscellaneous Mixed Feeds.*

##### *Provender.*

Analyses on pages 46-49.

The term provender was formerly, and in country places is still, used to designate a ground mixture of equal weights of corn and oats. Next to corn meal it is probably the chief product of our smaller grist mills.

Forty samples of this feed have been collected and analyzed. In only three cases, given below, are the goods sold with a guaranty.

No.	Manufacturer.	Dealer.	Protein.		Fat.	
			Guaranty.	Found.	Guaranty.	Found.
12978	E. M. Bailey, Montpelier, Vt. ....	E. H. Caulkins, New London ..	9.0	9.6	4.0	4.0
12987	C. W. Campbell, West-erly, R. I. ....	S. H. Cheseboro, Stonington ...	11.0	9.4	4.0	4.2
13264	Smith, Northam & Co., Hartford .....	Manufacturer .....	9.0	9.6	4.0	4.0

The samples are pure and of average quality. No. 13066, containing much more protein than the others, 11.37 per cent., consists largely of oats.

### *Various Corn and Oat Feeds.*

Analyses on pages 48-51.

These are sold under a variety of trade names and consist of factory by-products, among them considerable oat hulls. The protein in them ranges from 7.25 to 9.62.

All of them bear guaranties of composition, which appear in the tables of analyses.

The Buffalo Cereal Co.'s Corn and Oat Chop, and the Boss Oat Feed, fully meet the manufacturers' guaranty.

The composition of De-Fi Corn and Oat Feed and Haskell's Stock Feed is in substantial agreement with their guaranties, while Victor Corn and Oat Feed, Dickinson's Stock Food, Monarch Chop Feed and Lenox Stock Feed have considerably less protein than is called for by their guaranties.

### *Corn and Wheat Feeds.*

Analyses on pages 50 and 51.

*Colonial Wheat Middlings*, made by the Miner-Hilliard Milling Co., Wilkesbarre, Penn., is a mixture of corn and wheat products containing no undue proportion of cob and in composition substantially meets its guaranty.

"*Jersey*" *Mixed Feed* claims to be a mixture of "winter wheat bran, winter wheat shipstuff and corn and cob meal." "A perfect ration." It is made by the Indiana Milling Co. of Terre Haute, Ind., which makes the wheat feed noticed on page 14, and in composition the two are not very unlike.

This brand is, however, sold with a statement of composition and a guaranty which it substantially meets. The relatively high percentage of fiber indicates the admixture of cob.

"*Dairy Mixed Feed*" is sold in packages bearing tags with precisely the same statements given with "Jersey" mixed feed,

excepting that the name of the manufacturer is not given, but instead, "made for Jennings & Fulton, Boston."

The two feeds are quite similar in composition.

*Corn, Oats and Barley.*

Analyses on pages 50 and 51.

*Schumacher's Stock Feed* is a mixture of the above named materials, made by the American Cereal Co., containing an average of 10.77 per cent. of protein and 3.73 per cent. of fat. This percentage of protein is far below the guaranteed amount, viz., 13 per cent.

*Proprietary Horse Feeds.*

Analyses on pages 52 and 53.

*Sucrene Horse Feed*, made by the American Milling Co., Chicago, Ill., who claim, "Sucrene is the French word for sugar, and is our trade mark. We take molasses, and by a newly invented process, for which we have a patent, turn it into Sucrene (sugar) in the feed in a granular meal form," etc. This feed also contains salt, barley, corn, oats, a large amount of weed seed (screenings?), seed stalks and other straw elements of some cereal.

In chemical composition it meets the manufacturer's guaranty as regards protein.

*Sucrene Horse Feed sampled by Purchasers.*

12051 and 12052, sent by R. G. Davis, New Haven.

ANALYSES.

	12051	12052
Protein .....	14.62	14.87
Fat .....	4.04	4.27

Both samples meet the manufacturer's guaranty.

*Buffalo Cereal Co.'s Horse Feed* contains mill products of corn, oats products, wheat and linseed, and substantially meets the guaranty of composition.

*H. O. Horse Feed* contains mill products of corn, wheat, oats and peanuts, and substantially meets the manufacturer's guaranty.

*New England Stock Feed*, made by the Hoco Mills, Buffalo, from mill products of corn, oats, wheat and peanuts, fully meets the guaranty of composition.



*Peck's Horse Feed*, sent by W. J. Peck, Seymour, stated to sell at \$22.00 per ton, contains 9.00 per cent. of protein and consists chiefly of corn and oats.

*Proprietary Dairy and Stock Feeds.*

Analyses on pages 54-55.

*Quaker Dairy Feed*, made by the American Cereal Co., consists chiefly of mill products of corn, oats, wheat and cotton seed meal. The average percentage of protein found in five analyses (12.66) is much below the guaranty of 14 per cent.

*Sucrene Dairy Feed*, made by the American Mill Co., Chicago, Ill., is a mixture of corn product, wheat product, oats, barley, malt sprouts, cotton seed meal, much weed seed and cereal stalks and meets the manufacturer's guaranty.

A single sample, sent by W. E. Waller, Bridgeport, stated to have been bought of Wheeler & Co., Bridgeport, with a statement on the bags of protein 18.50 per cent., fat 4.50 per cent., contains 14.06 per cent. of protein and 3.96 per cent. of fat.

*Blatchford's Calf Metal* contains less protein than the guaranteed amount.

*Blomo Feed*, made by the Blomo Manufacturing Co., New York, contains dried blood, saccharine matter and oat hulls, and rather less protein and fat than are guaranteed.

*Creamery Feed*, made by the Buffalo Cereal Co., Buffalo, N. Y., contains mill products of corn, oats, wheat and cotton seed meal. One of the two samples analyzed contains somewhat less protein than is guaranteed.

*H. O. Dairy Feed*, made by the H. O. Company, Buffalo, contains mill products of oats, cracked corn, wheat, peanuts and cotton seed meal. It substantially meets the manufacturer's guaranty.

*United Breeders Dairy Food*. A sample, No. 13360, sent by W. S. Fushey, Wallingford, is stated to be made by the United Breeders Co. of America, and to cost \$9.00 per 100 pounds.

It contains 17.56 per cent. of protein, and the following foods, condiments and medicines: Charcoal, epsom salts, sulphur, fenugreek, linseed meal, wheat, corn, herbs.

It is one of the mixtures of food, medicine and condiment, which are being at present extensively advertised and which were fully discussed in Bulletin 132 of this station.

### *Proprietary Poultry Feeds.*

Analyses on pages 54 and 55.

*American Poultry Feed*, made by the American Cereal Co., Chicago, is a mixture of wheat products, coarse corn meal and cotton seed meal, and substantially meets the guaranty.

*Poultry Feed*, made by Buffalo Cereal Co., Buffalo, is a mixture of wheat bran, coarse corn meal and rolled oats.

*Laying Food*, made by the Cypher Incubator Co., Buffalo, is a mixture of corn and wheat products, with some animal matter. The percentage of protein is considerably higher than the guaranty and that of fat somewhat lower.

*H. O. Poultry Feed*, made by the H. O. Co. of Buffalo, N. Y., contains rolled oats, cracked corn, wheat bran and peanuts, and fully meets the manufacturer's guaranty.

### *Animal Meal.*

Analyses on pages 54 and 55.

Six brands of animal meal for poultry feed have been analyzed and the results, which appear in the following tables, do not call for special notice here.

### *Miscellaneous Poultry Feeds.*

11549. A poultry feed containing bran, corn, oats, rolled oats and ground quartz from L. C. Daniels Grain Co., Hartford.

12135. Little Chick Feed contains oats (hulls removed) cracked wheat, cracked corn and millet of some kind.

13331. Scratching Food contains wheat, cracked corn, sorghum and hulled oats.

13332. Soft mash contains wheat bran, corn meal and an oat product.

The last three named feeds were sent by W. M. Brown, Bloomfield, and were sold by the L. C. Daniels Grain Co., Hartford.

12137. Grease Scraps or Cracklings, sent by F. J. Hamilton, Thompsonville, cost \$30.00 per ton in the cake, \$2.25 per hundred weight, ground and screened.

13413. Meat Meal sent by W. E. Copley, Hazardville.

#### ANALYSES.

	11549	12135	13331	13332	12137	13413
Water .....	9.00	12.09	----	----	21.81	6.49
Ash .....	8.92	----	----	----	----	----
Protein .....	14.50	11.00	11.63	14.63	46.75	51.25
Fat .....	4.54	3.10	----	----	13.42	13.81

## APPLE POMACE.

A sample of this material, sent by L. J. Platts, Deep River, has the following composition:

Water.....	70.07
Ash.....	2.28
Protein.....	1.66
Fiber.....	7.71
Nitrogen-free Extract (sugar, pectins, etc.)...	16.39
Ether Extract (fat and wax).....	1.89
	<hr/>
	100.00

This material, of which there is a good deal to be had in any apple year, is well worth housing and feeding to cattle. Attention was called to it in the report of this Station for 1888. Mr. J. H. Dickerman of Mt. Carmel has fed it to both horses and cattle with good results. Its value as silage has been studied at the Vermont Station, which says regarding it in Bulletin 96:

"The experience of four years with apple pomace silage, at this station, using over twenty cows, is a unit in affirming the nearly equivalent—if not, indeed, quite equivalent—feeding values of apple pomace and corn silage. No undesirable results whatsoever have followed its use. Cows continuously and heartily fed have not shrunk, but on the contrary have held up their milk flows remarkably well. Neither does the milk nor the butter seem injured in any respect. Inasmuch, however, as reports of severe shrinkage occurring coincident with the use of apple pomace are current, care is advised in feeding it at the outset.

Apple pomace needs no special care in ensiling. If levelled from time to time as put into the silo and left to itself uncovered and unweighted it does well. Fifteen pounds a day per cow has been fed at this station with entire satisfaction."

*Dried Molasses Beet Pulp.*

No. 11322. Made by the Alma Sugar Co., Alma, Mich., was sampled from stock of R. L. Brenner, Westville, and sent by W. B. French, Westville. It is understood to be the by-product made by drying the sugar beet "chips" from which the sugar has been extracted by repeated soaking in water. The analysis is as follows:

Water.....	6.09
Ash.....	5.64
Protein.....	9.75
Fiber.....	15.77
Nitrogen-free Extract (sugar, gums, etc.).....	61.94
Ether Extract (fat).....	0.51
	<hr/>
	100.00

Another sample, sent by Taylor & Morse, Shelton, contained 8.94 per cent. of protein. The value of this *dried* beet pulp as a dairy feed has not to our knowledge been thoroughly tested.

### THE DIGESTIBILITY OF FEEDING-STUFFS.

A certain part of every feeding-stuff is indigestible and passes through the body into the dung without doing anything to sustain the animal. The value of a commercial feed rests wholly in that portion of it which the animal can, under favorable conditions, digest or appropriate and make a part of itself. Some animals have greater power of digestion than others, and the amount of any ingredient, protein, fat, or fiber, digested by a given animal depends much on the proportion of other ingredients which are fed along with it. Thus, if starchy matter is fed in too large proportion, a considerable part of it will pass into the dung and be wasted. But fed in proper fashion over 90 per cent. of it may be taken up by the body and nourish it.

Table I gives the "digestion coefficients" of most of the feeds mentioned in Table IV.

The digestion coefficient of protein, for example, in cotton seed meal is 88. This means that in a properly made ration, neat cattle, in good health, may be expected, on the average, to digest about 88 parts out of every 100 parts of the protein of cotton seed meal of good quality. The table has no great mathematical precision, but is, nevertheless, a valuable general guide in feeding.

The use of the table is quite simple. Suppose analysis shows a certain sample of cotton seed meal to contain 43.5 per cent. of protein; that is, 43.5 pounds of protein in 100 pounds of the meal. It is desired to know how much *digestible* protein is contained in 100 pounds of meal. The table of "digestion coefficients" shows that of every 100 pounds of crude protein in cotton seed meal 88 pounds are digestible. It follows by the rule of three (100 is to 88 as 43.5 is to 38.28), that of the 43.5 pounds of protein 38.28 pounds are digestible. To apply the

table, multiply the percentage found on analysis by the proper coefficient taken from the table and divide the product by 100. The result will be the percentage amount of *digestible* protein, fiber, etc., as the case may be.

In Table IV, under the averages of analyses, will be found calculated the average digestible nutrients contained in the different feeding-stuffs, so far as the data at hand permit.

TABLE I. — DIGESTION COEFFICIENTS, OR PERCENTAGES OF THE FOOD INGREDIENTS, FOUND BY ANALYSES, WHICH ARE DIGESTIBLE BY NEAT CATTLE.

(Jordan's Compilation, Office of Experiment Stations, Bulletin 77.)

	Protein.	Fiber.	Nitrogen-free Extract.	Fat.
Cotton Seed Meal .....	88	56	62	93
Linseed Meal, new process..	85	80	86	97
Linseed Meal, old process..	89	57	78	89
Corn Meal .....	68	--	95	92
Gluten Meal .....	88	--	90	94
Gluten Feed .....	86	78	89	84
Wheat Bran .....	78	29	69	68
Wheat Middlings .....	80	33	81	86
Wheat Mixed Feed .....	80	25	78	78
Oats* .....	78	20	76	83
Rye Meal .....	84	-	92	64
Malt Sprouts .....	80	33	68	100
Dried Brewers' Grains .....	79	52	58	91
H. O. Dairy Feed .....	78	41	70	86
H. O. Horse Feed .....	74	35	79	84
Quaker Oat Feed .....	81	43	67	89
Quaker Dairy Feed† .....	78	41	70	86
Victor Corn and Oat Feed‡ ..	71	48	83	87

## REGARDING THE PURCHASE OF COMMERCIAL FEEDING-STUFFS.

A well-managed dairy farm should produce all of the coarse fodder,—in form of corn fodder or stover, hay and ensilage,—which is needed for the stock, and, excepting under unusual conditions, should also supply an abundance of starchy food, such as corn meal and in some cases oats and barley, for feeding purposes.

These the farmer should be able to produce in abundance.

But in order to feed them without waste and also to supply a deficiency in them, it is almost always advisable or necessary, in the absence of clover, alfalfa, or other leguminous crops, to buy feeds *rich in digestible protein*;—considerably richer in it than corn meal. It is the object of this bulletin to

\*Mentzel and Lengerke.

† Assumed same as H. O. Dairy Feed.

‡ Assumed for all other corn and oat feeds.



show what feeds there are in our market which meet this demand for digestible protein.

Table II is a summary of Table IV, and shows, first, the average composition of the feeds whose analyses are given in that table, *arranged according to the per cent. of protein in them*; second, the amount of digestible matter in each, so far as we have been able to calculate it; and third, the average retail prices of feeds in October and November last. The table divides the commercial feeds on the market into five classes, according to the quantities of protein in them.

1. Those having over 30 per cent. of protein—cotton seed, the linseed and gluten meals, distillery grains and buckwheat middlings. The average cost of them is about \$28.68 per ton.

2. Those having between 20 and 30 per cent. of protein—most of the gluten feeds and malt sprouts. Their average cost is about \$27.40 per ton.

3. Feeds having between 15 and 20 per cent. of protein—the wheat feeds, rye feeds and some proprietary feeds. The average cost of this group is about \$26.40.

4. Feeds having between 10 and 15 per cent. of protein—hominy feed, ground oats and many proprietary feeds. The average cost is \$26.45.

5. Feeds having less than 10 per cent. of protein. Here belong corn meal, provender and all the low grade "stock feeds" and "corn and oat" feeds. The average cost of this group is \$25.61.

This table brings out strikingly the fact that the prices of feeds stand in no just relation to their feeding value. Thus, a mixture of low grade corn or corn meal with oat refuse, etc., and containing less than 9 per cent. of protein, costs—and is actually bought by Connecticut farmers for—only \$3.00 less per ton than a feed having more than 30 per cent. of protein.

In most cases a feeder cannot use to advantage any boughten feed containing less than 15 per cent. of protein.

Ready mixed feeds, made of a number of by-products or factory wastes may wisely be let alone, unless the buyer can see for himself out of just what raw material the mixture is being prepared. Low grade, damaged corn, shriveled wheat, peanut refuse and wheat screenings consisting largely of weed seeds, are not infrequently found in such feeds by careful examination, but are not easy for the buyer himself to recognize.

TABLE II.—AVERAGE COMPOSITION OF FEEDS IN CONNECTICUT MARKET.  
DIGESTIBLE MATTER IN THEM AND SELLING PRICE.

	In 100 pounds of feed are contained pounds of						In 100 pounds of feed are contained pounds of digestible				Cost per ton.
	Water.	Ash.	Protein.	Fiber.	N-free extract (starch, etc.).	Ether extract (fat).	Protein.	Fiber.	N-free extract (starch, etc.).	Ether extract (fat).	
<i>Containing over 30 p. c. protein.</i>											
Cotton Seed Meal.....	8.8	6.8	43.4	6.7	24.7	9.6	38.2	3.7	15.4	8.9	\$28.88
Linseed Meal, new process.....	10.2	5.8	36.2	9.4	35.4	3.0	30.7	7.6	30.4	3.0	28.33
Cream Gluten Meal.....	8.8	1.5	34.9	1.9	49.2	3.7	30.7	--	44.3	3.5	32.00
Chicago Gluten Meal.....	9.6	1.2	33.8	2.6	49.1	3.7	29.8	--	44.2	3.5	29.33
Linseed Meal, old process.....	10.7	5.2	33.8	8.4	34.8	7.1	30.1	4.8	27.1	6.4	31.45
Distillery Grains, Ajax Flakes.....	6.9	2.2	32.1	12.5	32.2	14.1	25.4	6.5	18.7	12.9	27.75
Buckwheat Middlings.....	13.7	5.5	30.8	7.6	34.0	8.4	----	----	----	----	23.00
<i>Containing 20-30 p. c. protein.</i>											
Globe Gluten Feed.....	9.3	2.1	26.8	7.6	50.9	3.3	23.0	6.0	45.3	2.8	25.80
Pekin Gluten Feed.....	9.2	1.0	26.3	7.6	52.4	3.5	22.6	5.9	46.8	2.9	27.00
Malt Sprouts.....	10.7	5.7	24.6	12.1	45.4	1.5	19.7	4.0	30.8	1.5	20.25
Warner's Gluten.....	10.0	1.1	23.4	7.0	56.0	2.5	20.1	5.5	49.9	2.1	28.00
Buffalo Gluten Feed.....	10.0	1.4	23.0	7.2	55.5	2.9	19.8	5.6	49.4	2.4	25.68
Blatchford's Calf Meal.....	10.5	4.2	22.7	4.5	53.4	4.7	----	----	----	----	38.00
Queen Gluten Feed.....	8.8	0.9	22.1	7.2	58.7	2.3	19.0	5.6	52.3	1.9	27.00
<i>Containing 15-20 p. c. protein.</i>											
Buffalo Creamery Feed.....	9.7	3.7	19.2	11.4	50.5	5.5	----	----	----	----	27.50
Sucrene Dairy Feed.....	10.4	6.2	18.6	11.9	49.2	3.7	----	----	----	----	27.00
H. O. Dairy Feed.....	9.3	3.6	17.4	12.6	51.0	6.1	13.6	5.2	35.7	5.3	28.50
J. H. Gluten Feed.....	9.6	0.6	17.1	10.5	59.1	3.1	14.7	8.2	52.6	2.6	22.00
Spring Wheat Middlings.....	11.0	4.2	17.1	6.4	56.3	5.0	13.6	2.1	45.6	4.3	26.60
Winter ".....	10.9	4.4	16.5	5.8	57.8	4.6	13.2	1.9	46.8	4.0	28.14
Mixed Wheat Feed, Spring.....	11.1	4.9	16.3	8.0	55.0	4.7	13.0	2.0	42.9	3.6	26.07
" " " Winter.....	10.7	5.6	16.0	7.8	55.4	4.5	12.8	1.9	43.2	3.5	25.83
Spring Wheat Bran.....	10.7	6.3	15.5	10.6	52.2	4.7	12.1	3.1	36.1	3.2	24.57
Winter " ".....	10.8	6.0	15.0	9.7	54.1	4.4	11.7	2.8	37.3	3.0	26.13
Rye Feed.....	11.5	3.4	14.9	4.0	63.3	2.9	12.6	--	58.1	1.9	28.00
<i>Containing 10-15 p. c. protein.</i>											
Blomo Feed.....	16.8	9.9	14.0	11.1	47.6	0.6	----	----	----	----	24.00
Sucrene Horse Feed.....	11.2	6.3	13.9	10.5	55.2	2.9	----	----	----	----	27.50
Colonial Middlings.....	10.6	3.7	13.7	6.1	59.8	6.1	----	----	----	----	28.00
Jersey Mixed Feed.....	8.9	4.5	12.9	13.6	56.6	3.5	----	----	----	----	24.00
Quaker Dairy Feed.....	8.9	5.3	12.7	17.6	51.8	3.7	9.9	7.2	36.3	3.2	24.40
Buffalo Horse Feed.....	10.1	3.2	11.7	10.0	60.2	4.8	----	----	----	----	29.00
H. O. Horse Feed.....	10.7	2.9	11.6	9.2	60.8	4.8	8.6	3.2	48.0	4.1	29.67
" Dairy" Mixed Feed.....	9.0	4.6	11.5	15.2	56.5	3.2	----	----	----	----	25.00
New England Stock Feed.....	9.8	2.9	11.1	8.0	63.6	4.6	----	----	----	----	26.00
Ground Oats.....	11.1	2.9	10.9	9.0	62.5	3.6	8.5	1.8	47.5	3.0	39.00
Schumacher's Stock Feed.....	10.5	3.7	10.8	10.0	61.3	3.7	----	----	----	----	27.50
Hominy Feed.....	9.7	2.5	10.3	4.7	65.2	7.6	7.0	--	62.0	7.0	25.84
<i>Containing less than 10 per cent. protein.</i>											
Haskell's Stock Feed.....	9.0	2.8	9.6	8.9	63.7	6.0	6.8	4.3	52.8	5.2	27.00
Provender.....	11.7	2.0	9.6	4.7	67.9	4.1	6.8	2.3	56.4	3.6	27.73
Corn Meal.....	12.8	1.6	9.6	2.6	68.8	4.6	6.5	--	65.3	4.2	26.00
Boss Corn and Oat Feed.....	10.6	3.6	8.9	11.3	60.2	5.4	6.3	5.4	50.0	4.7	24.00
De-Fi Oat Feed.....	8.2	3.8	8.8	14.7	61.2	3.3	6.2	7.1	50.8	2.9	25.00
Dickinson's Stock Food.....	9.0	4.1	8.6	12.4	61.4	4.5	6.1	6.0	51.0	3.9	24.00
Victor Corn and Oat Feed.....	9.6	3.7	8.3	12.3	62.2	3.9	5.9	5.9	51.6	3.4	25.40
Corn and Oat Chop.....	9.9	3.7	8.2	12.5	61.6	4.1	5.8	6.0	51.2	3.6	26.00
Lenox Stock Feed.....	9.2	3.4	7.5	14.2	62.0	3.7	5.3	6.8	51.4	3.2	26.00
Monarch Chop Feed.....	9.4	2.9	7.3	12.9	64.3	3.2	5.2	6.2	53.5	2.8	25.00

# THE WEIGHT OF ONE QUART OF VARIOUS FEED- ING-STUFFS.

The following table gives the weight of one quart of the feeds named, and is useful to calculate the weight of grain ration fed, from the measure which is almost universally used on farms.

This table was prepared by Mr. H. G. Manchester, of Winsted.

TABLE III. — THE AVERAGE WEIGHT OF ONE QUART OF EACH OF THE FEEDS NAMED.

	Pounds.
Cotton Seed Meal.....	1.5
Linseed Meal, old process.....	1.1
Linseed Meal, new process.....	0.9
Gluten Meal.....	1.7
Gluten Feed.....	1.4
Distillers' Grains .....	0.7
Wheat Bran, coarse.....	0.5
Wheat Middlings, coarse .....	0.8
Wheat Middlings, fine.....	1.1
Mixed Wheat Feed .....	0.6
Corn Meal.....	1.5
Hominy Meal.....	1.3
Provender.....	1.5
Oats .....	1.2
Rye Bran.....	0.6
H. O. Dairy Feed.....	0.7
Victor Corn and Oat Feed.....	0.7

TABLE IV.—ANALYSES OF COMMERCIAL FEEDS.

Station No.	BRAND.	RETAIL DEALER.
<i>Cotton Seed Meal.</i>		
13096	England Mill. American Cotton Oil Co., N. Y.	Wallingford: E. E. Hall.....
13150	Texarkana Mill. " " "	Middlefield: A. E. Miller.....
13197	Ft. Smith, Ark. Mill. " " "	New Milford: F. R. Green.....
13232	Brinkley, Ark. Mill. " " "	Unionville: S. Richards.....
13268	Memphis, Tenn. Mill. " " "	Suffield: Spencer Bros. ....
13280	Argenta Mill. " " "	Manchester: Barrows & Kuhney
12988	Old Gold Brand. T. H. Bunch, Little Rock, Ark.	East Hampton: R. H. Hall.....
13213	Green Diamond Brand. Chapin & Co., St. Louis.	Torrington: F. U. Wadhams..
13047	----- The Hunter Bros. Milling Co., St. Louis.	Avon: W. G. Woodford & Co..
13254	----- " " "-----	Hartford: Daniels Mill Co. ....
13207	Dixie Brand. Humphreys, Godwin & Co., Memphis, Tenn.	Middletown: The Coles Co. ....
13031	Horse Shoe Brand. Hugh Pettit & Co., Memphis, Tenn.	Norwalk: Holmes, Keeler, Selleck Co. ....
13286	Star Brand. Sledge & Wells Co., Memphis, Tenn.	Willimantic: W. D. Grant ....
13061	----- J. E. Soper & Co., Boston -----	Bristol: W. O. Goodsell.....
13108	----- " " "-----	Meriden: Meriden Grain and Feed Co. ....
13124	----- " " "-----	New Britain: C. W. Lines Co. ....
13167	----- Abner Hendee, New Haven*-----	Watertown: John H. Taylor Co. ....
13202	----- Jobber unknown -----	Middletown: Meech & Stoddard
		Average of the 17 analyses†....
		Average digestible .....
<i>Linseed Meal, New Process.</i>		
13206	----- American Linseed Co., New York*-----	Middletown: Meech & Stoddard
13283	----- " " Chicago -----	Willimantic: W. D. Grant ....
13384	----- " " "-----	Yantic: A. R. Manning.....
		Average of these 3 analyses...
		Average digestible .....
<i>Linseed Meal, Old Process.</i>		
13107	----- American Linseed Co., New York -----	Meriden: Meriden Grain and Feed Co. ....
13125	----- " " "-----	New Britain: C. W. Lines Co. ....
13174	----- " " "-----	Waterbury: The Platt Mill Co. ....
13214	----- " " Buffalo -----	Torrington: F. U. Wadhams..
13250	----- " " "-----	Hartford: L. C. Daniels Grain Co. ....
13190	----- A. L. Clement & Co., New York -----	Danbury: F. C. Benjamin & Co. ....
13388	----- Hunter Bros., St. Louis -----	Norwich: A. A. Beckwith ....
13052	----- Metzger Seed & Oil Co., Toledo, O. -----	Bristol: G. W. Eaton.....
13255	----- " " "-----	Hartford: Daniels Mill Co. ....
13119	----- Midland Linseed Co., Minneapolis -----	New Britain: Hugh Reynolds..
13010	----- " " "-----	New Haven: Abner Hendee....
		Average of these 11 analyses...
		Average digestible .....

\* Statement of Dealer.

† Excluding No. 13047.

## SAMPLED IN 1904.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Fat.)	
13096	10.31	7.42	42.19	8.08	23.70	8.30	\$28.00
13150	9.09	6.12	44.00	6.94	25.11	8.74	28.00
13197	7.85	6.17	46.25	5.59	24.88	9.26	29.00
13232	8.55	6.58	43.00	6.57	26.10	9.20	30.00
13268	8.46	7.03	42.94	6.64	25.72	9.21	29.00
13280	8.22	7.02	41.87	7.14	25.46	10.29	30.00
12988	7.38	6.89	43.94	5.75	24.84	11.20	29.00
13213	9.24	5.86	41.37	7.29	27.27	8.97	28.00
13047	10.06	6.27	37.50	10.38	28.47	7.32	29.00
13254	8.55	6.72	42.25	8.44	26.10	7.94	29.00
13207	8.85	7.49	42.75	7.59	23.93	9.39	29.00
13031	10.16	6.96	45.25	4.67	23.76	9.20	29.00
13286	8.53	6.82	44.94	4.83	23.40	11.48	28.00
13061	9.60	6.71	43.56	6.30	22.53	11.30	30.00
13108	9.18	6.81	42.81	5.96	25.26	9.98	30.00
13124	9.25	7.05	44.12	6.53	23.97	9.08	28.00
13167	8.47	5.99	42.31	7.24	26.80	9.19	29.00
13202	8.20	7.02	44.50	8.05	22.53	9.70	28.00
	8.82	6.75	43.41	6.68	24.79	9.55	28.88
	----	----	38.20	3.74	15.37	8.88	
13206	10.13	5.98	35.12	9.77	36.07	2.93	28.00
13283	10.32	5.84	36.00	9.69	34.87	3.28	27.00
13384	10.10	5.64	37.37	8.85	35.04	3.00	30.00
	10.18	5.82	36.16	9.44	35.33	3.07	28.33
	----	----	30.74	7.55	30.38	2.98	
13107	12.14	4.48	36.06	7.74	33.22	6.36	32.00
13125	12.30	4.56	35.37	7.99	32.98	6.80	30.00
13174	10.43	4.70	34.87	8.41	34.86	6.73	32.00
13214	10.65	4.60	36.50	7.09	34.12	7.04	32.00
13250	9.85	4.70	36.31	8.30	33.20	7.64	32.00
13190	10.32	6.02	32.62	8.65	35.79	6.60	30.00
13388	10.36	5.00	31.75	9.03	36.01	7.85	32.00
13052	11.21	5.87	32.25	8.75	35.67	6.25	31.00
13255	9.58	6.45	32.00	9.54	35.13	7.30	32.00
13119	11.16	4.90	30.62	8.36	36.96	8.00	32.00
13010	10.15	5.36	33.62	8.27	34.72	7.88	31.00
	10.74	5.15	33.82	8.37	34.79	7.13	31.45
	----	----	30.10	4.77	27.14	6.35	



TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	BRAND.	RETAIL DEALER.
<b>WHEAT PRODUCTS.</b>		
<i>Bran from Winter Wheat.</i>		
13037	Ballard's. Ballard & Ballard, Louisville, Ky. ....	Stamford: Scofield & Miller. ....
13263	..... Dow & King, Pittsfield, Ill. ....	Hartford: Smith, Northam & Co
13131	Choice. Hecker-Jones-Jewell Mill. Co., N. Y. ....	Plantville: T. B. Atwater ....
13383	Empire. Hunter Bros. Mill Co., St. Louis* ....	Yantic: A. R. Manning ....
13239	Stott's. David Stott, Detroit .....	Pine Meadow: D. B. Smith ....
13172	Voigt's Choice. Voigt Mill. Co., Grand Rapids, Mich. ....	Waterbury: The Platt Mill Co.
13090	.....	Hamden: I. W. Beers .....
13244	..... J. S. Wolf, Pittsfield, Mass.* .....	New Hartford: New Hartford Elevator Co. ....
		Average of these 8 analyses ....
		Average digestible .....
<i>Bran from Spring Wheat.</i>		
13003	Wirthmore Fancy. Chas. M. Cox Co., Boston .....	New Haven: R. G. Davis .....
13085	..... " " " " " " .....	Branford: S. V. Osborn .....
13223	Clover Leaf. Gardner Mills, Hastings, Minn. ....	Winsted: Balch & Platt .....
13079	Duluth Imperial. Duluth Imperial Mill. Co., Duluth, Minn. ....	Guilford: Morse & Landon .....
13027	..... Gooding, Cox Co., Royalton, Minn. ....	Bridgeport: W. M. Terry & Co.
12985	..... W. J. Jennison Co., Minneapolis .....	Stonington: S. H. Chesebro .....
13036	..... Madelia Roller Mills, Madelia, Minn. ....	South Norwalk: Manuel T. Hatch
13228	New Prague Flaky. New Prague Roller Mills Co., New Prague, Minn. ....	Canaan: Ives & Pierce. ....
13005	..... The Northwestern Consolidated Mill Co.	New Haven: Abner Hendee. ....
13194	Ben Hur. Royal Mill. Co. ....	Danbury: C. W. Keeler .....
13151	Bixota. Simmons Mill. Co., Red Wing, Minn. ....	Middlefield: A. E. Miller .....
13170	..... Sleepy Eye Mill. Co., Sleepy Eye, Minn.	Watertown: John H. Taylor Co.
12977	..... Star & Crescent Mill. Co., Chicago. ....	Norwich: Norwich Grain Co. ....
13075	Superior. Lake Superior Mills, Superior, Wis. ....	Guilford: G. F. Walter .....
13136	..... Washburn-Crosby Co., Minneapolis .....	Southington: Southington Lumber and Feed Co. ....
		Average of these 15 analyses ..
		Average digestible .....
<i>Middlings, Winter Wheat.</i>		
13210	Ballard's Shipstuf. Ballard & Ballard Co., Louisville, Ky. ....	Torrington: E. H. Talcott .....
13273	..... Aug. J. Butte, Clinton, Mo. ....	Suffield: Arthur Sykes .....
13265	..... Dow & King, Pittsfield, Ill. ....	Windsor: C. F. Lewis .....
13006	..... Hecker-Jones-Jewell Mill. Co., N. Y. ....	New Haven: Abner Hendee. ....
13054	M. " " " " " " .....	Bristol: G. W. Eaton .....
12974	Fancy. Hunter Bros., St. Louis* .....	Norwich: Norwich Grain Co. ....
13173	..... Strong, Lefferts Co., New York .....	Waterbury: The Platt Mill Co.
		Average of these 7 analyses ....
		Average digestible .....
<i>Middlings, Spring Wheat.</i>		
13245	..... American Cereal Co.* .....	East Hartford: W. J. Cox .....
13284	..... Ashton Flouring Mills, Ashton, S. Dak.	Willimantic: W. D. Grant ....

\* Statement of Dealer.

## SAMPLED IN 1904.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Fat.)	
13037	12.60	5.76	13.87	8.00	55.71	4.06	\$29.00
13263	10.01	6.21	13.25	13.29	53.06	4.18	25.00
13131	12.74	6.08	15.37	10.32	51.03	4.46	26.00
13383	9.12	5.70	15.62	8.12	56.74	4.70	24.00
13239	10.20	6.27	16.06	8.72	53.93	4.82	28.00
13172	10.56	5.82	15.00	8.85	55.63	4.14	25.00
13090	11.28	5.99	13.62	10.88	53.75	4.48	25.00
13244	10.00	5.98	17.06	9.46	53.02	4.48	27.00
	10.81	5.98	14.98	9.70	54.12	4.41	26.13
	----	----	11.69	2.81	37.34	3.00	
13003	11.18	6.26	17.37	9.93	50.89	4.37	24.00
13085	11.02	6.15	17.37	11.15	49.36	4.95	26.00
13223	10.24	6.34	15.37	10.12	53.18	4.75	26.00
13079	10.80	5.70	16.75	10.37	51.63	4.75	24.00
13027	10.39	6.83	14.37	11.07	52.64	4.70	24.00
12985	8.77	6.35	16.06	10.01	53.97	4.84	26.00
13036	12.90	6.91	16.12	9.82	50.07	4.18	23.00
13228	9.02	6.72	13.31	12.15	54.04	4.76	23.50
13005	11.90	6.70	14.87	10.77	51.16	4.60	25.00
13194	10.58	5.92	16.00	10.53	52.08	4.89	25.00
13151	10.28	6.70	15.06	10.22	53.35	4.39	22.50
13170	10.60	5.24	14.31	10.09	54.91	4.85	26.00
12977	8.84	6.80	13.87	12.08	53.24	5.17	----
13075	11.31	5.68	17.19	10.74	50.49	4.59	24.00
13136	12.42	5.84	13.87	10.44	52.86	4.57	25.00
	10.68	6.28	15.47	10.63	52.25	4.69	24.57
	----	----	12.07	3.08	36.05	3.19	
13210	10.58	4.79	16.75	6.24	56.99	4.65	28.00
13273	11.99	2.51	15.04	2.37	63.33	3.86	28.00
13265	10.86	3.86	14.87	4.17	61.92	4.32	28.00
13006	11.16	4.94	17.81	8.20	52.66	5.23	26.00
13054	10.55	5.00	17.00	8.28	54.28	4.89	30.00
12974	10.28	4.64	16.19	5.13	59.29	4.47	28.00
13173	10.75	4.73	17.06	6.29	56.31	4.86	29.00
	10.88	4.35	16.52	5.81	57.83	4.61	28.14
	----	----	13.22	1.92	46.84	3.96	
13245	11.44	2.78	15.25	3.38	62.83	4.32	23.00
13284	9.96	5.85	18.75	7.45	52.63	5.36	25.00

TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	BRAND.	RETAIL DEALER.
<i>WHEAT PRODUCTS—Continued.</i>		
<i>Middlings, Spring Wheat.</i>		
13400	Standard. L. Christian & Co., Minneapolis.....	<i>Putnam</i> : Bosworth Bros. ....
13143	Flour Middlings. Northwest. Cons. Mill. Co.....	<i>Plainville</i> : G. W. Eaton.....
12983	Niagara Standard. Cataract City Mill. Co., Niagara Falls .....	<i>New London</i> : P. Schwartz.....
13088	Niagara White. Cataract City Mill. Co., Niagara Falls .....	<i>Hamden</i> : I. W. Beers.....
13218	..... J. D. Davis Co., Rochester, N. Y.....	<i>Winsted</i> : F. Woodruff & Son..
13148	..... Freeman Milling Co., Superior .....	<i>Plainville</i> : F. B. Newton.....
13222	Snowball. The Gardner Mills, Hastings, Minn....	<i>Winsted</i> : Balch & Platt.....
13112	⟨⟩ Imperial Mill Co., Duluth, Minn.....	<i>Meriden</i> : A. H. Cashen .....
13389	..... Moseley & Motley Mill. Co., Rochester, N. Y.	<i>Norwich</i> : A. A. Beckwith.....
13227	New Prague Standard. New Prague Roller Mill. Co., New Prague, Minn. ....	<i>Canaan</i> : Ives & Pierce.....
13201	A. Pillsbury, Minneapolis.....	<i>New Milford</i> : Ackley, Hatch & Marsh .....
13248	B. " " .....	<i>Hartford</i> : L. C. Daniels Grain Co. ....
13193	Ben Hur Standard. Royal Mill. Co., Minneapolis	<i>Danbury</i> : C. W. Keeler.....
13028	White Sheffield. Sheffield King Mill. Co., Minn....	<i>Bridgeport</i> : Wm. M. Terry & Co.
13171	..... Sleepy Eye Mill. Co., Sleepy Eye, Minn.	<i>Watertown</i> : John H. Taylor Co.
12984	..... Star & Crescent Mill. Co., Chicago.	<i>New London</i> : P. Schwartz.....
13184	Standard. Washburn-Crosby Co., Washburn, Ill..	<i>Thomaston</i> : L. E. Blackmer...
13063	Snow's Cream. E. S. Woodworth & Co., Minneapolis .....	<i>Bristol</i> : W. O. Goodsell .....
		Average of these 20 analyses...
		Average digestible .....
<i>Mixed Feed from Winter Wheat.</i>		
13261	Acme. Acme Mill. Co., Indianapolis.....	<i>Hartford</i> : Smith, Northam & Co.
13121	Buckeye. American Cereal Co.....	<i>New Britain</i> : The C. W. Lines Co. ....
13159	" " " .....	<i>Ansonia</i> : Ansonia Flour and Grain Co. ....
13185	Angola. Simpson, Hendee & Co., New York .....	<i>Thomaston</i> : L. E. Blackmer...
13285	Diamond. Annan, Burg & Co., St. Louis .....	<i>Willimantic</i> : W. D. Grant.....
13128	Carter's A. B. S. Chase Grain Co., New York*	<i>Plantsville</i> : T. B. Atwater.....
13180	Carter's A. B. S. J. E. Soper & Co., Boston*	<i>Waterbury</i> : I. A. Spencer.....
13025	Edison. Chapin & Co. ....	<i>Clintonville</i> : S. A. Smith & Son
13226	Edison. " " .....	<i>Canaan</i> : Ives & Pierce.....
13209	Erie. " " .....	<i>Torrington</i> : E. H. Talcott.....
13291	..... " " .....	<i>Stafford Springs</i> : G. L. Dennis
13220	Hoosier Mill. G. T. Evans, Indianapolis .....	<i>Winsted</i> : F. Woodruff & Son..
13067	Garland. Garland Mill. Co., Greensburg, Ind....	<i>North Haven</i> : Co-op. Feed Co.
13279	" " " " .....	<i>Manchester</i> : Barrows & Kuhney
13068	..... Waggoner Gates Mill. Co., Independence.	<i>North Haven</i> : Co-op. Feed Co.
13118	..... Hannibal Milling Co. ....	<i>New Britain</i> : Hugh Reynolds.
13024	Manhattan. Hecker-Jones-Jewell Co., New York	<i>Clintonville</i> : S. A. Smith & Son
13034	Queen. " " " " .....	<i>South Norwalk</i> : Manuel T. Hatch
13050	Manhattan. " " " " .....	<i>Bristol</i> : G. W. Eaton .....
13387	Ship Stuff. J. Andrew Cain, Hope Mills, Versailles, Ky.....	<i>Norwich</i> : A. A. Beckwith.....

\* Statement of Dealer.

## SAMPLED IN 1904.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Fat.)	
13400	10.53	4.48	15.87	6.64	57.33	5.15	\$28.00
13143	10.84	3.89	18.25	5.25	56.25	5.52	28.00
12983	10.07	4.98	17.31	8.01	54.15	5.48	23.00
13088	11.89	4.44	17.56	6.85	54.23	5.03	26.00
13218	10.84	3.82	19.31	4.99	55.54	5.50	28.00
13148	11.65	4.16	15.81	6.32	57.20	4.86	28.00
13222	10.65	4.52	17.75	6.87	55.74	4.47	28.00
13112	11.19	4.36	18.19	7.24	53.76	5.26	27.00
13389	11.57	3.46	16.62	4.76	58.71	4.88	25.00
13227	10.13	4.55	15.94	7.99	56.07	5.32	25.00
13201	11.40	3.60	17.37	4.30	58.31	5.02	28.00
13248	10.28	4.83	16.19	10.02	53.95	4.73	27.00
13193	10.98	4.26	17.81	7.50	54.49	4.96	26.00
13028	12.06	3.79	16.31	5.24	58.40	4.20	28.00
13171	11.49	3.90	16.69	5.69	56.52	5.71	27.00
12984	9.86	4.64	16.37	7.56	55.73	5.84	24.00
13184	11.28	4.72	15.94	8.31	54.86	4.89	26.00
13063	12.70	2.72	17.75	2.55	60.35	3.93	27.00
	11.04	4.19	17.05	6.35	56.35	5.02	26.60
	----	----	13.64	2.10	45.64	4.32	
13261	9.30	5.58	15.62	7.62	57.13	4.75	26.00
13121	12.08	5.63	15.62	7.17	54.88	4.62	25.00
13159	10.94	5.84	15.87	9.14	53.46	4.75	25.00
13185	11.12	5.17	15.87	10.84	52.20	4.80	26.00
13285	9.74	4.86	15.25	7.34	58.20	4.61	26.00
13128	12.53	5.79	15.87	9.91	51.39	4.51	26.00
13180	10.28	6.16	17.25	8.74	53.19	4.38	25.00
13025	11.34	5.40	16.00	6.64	56.21	4.41	26.00
13226	9.71	5.32	16.25	7.07	56.51	5.14	26.00
13209	10.50	6.03	16.25	7.69	55.32	4.21	26.00
13291	9.98	5.22	15.75	7.03	57.81	4.21	26.00
13220	9.41	5.51	15.50	7.69	57.39	4.50	26.00
13067	10.90	5.43	16.50	7.89	54.79	4.49	25.00
13279	9.58	5.60	15.62	7.31	57.40	4.49	26.00
13068	11.30	5.83	16.75	8.37	52.77	4.98	25.00
13118	12.42	5.17	14.56	7.51	56.30	4.04	26.00
13024	10.41	5.75	15.75	8.86	55.08	4.15	26.00
13034	11.83	5.85	15.87	8.88	53.03	4.54	24.00
13050	10.66	5.60	16.62	8.35	54.22	4.55	27.00
13387	9.43	5.24	15.31	6.89	58.51	4.62	27.00



TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	BRAND.	RETAIL DEALER.
<i>WHEAT PRODUCTS—Continued.</i>		
<i>Mixed Feed from Winter Wheat.</i>		
13394	Ship Stuff. J. Andrew Cain, Hope Mills, Versailles, Ky. ....	Danielson: Waldo Bros. ....
13094	..... Hunter Bros., St. Louis .....	Wallingford: E. E. Hall .....
13163	..... C. M. Cox Co., Boston* .....	Westville: W. E. Warner & Bro. ....
13141	Sunshine. Hunter Bros. Mill Co., St. Louis .....	Plainville: G. W. Eaton .....
13382	" " " " " " .....	Yantic: A. R. Manning .....
13142	..... Kehler Bros. ....	Plainville: G. W. Eaton .....
13106	Snowflake. Lawrenceburg Mill. Co., Lawrenceburg, Ind. ....	Meriden: Meriden Grain and Feed Co. ....
13109	Eatmore. Louisville Mill. Co., Louisville, Ky. ....	Meriden: Meriden Grain and Feed Co. ....
13253	Model. John F. Meyer & Sons, Springfield, Mo. ....	Hartford: Daniels Mill Co. ....
13200	Results. National Mill. Co., Toledo, Ohio .....	New Milford: Ackley, Hatch & Marsh .....
13135	Rex. Rex Mill. Co., Kansas City .....	Southington: Southington Lumber and Feed Co. ....
13062	..... J. E. Soper & Co., Boston* .....	Bristol: W. O. Goodsell .....
13267	Try-Me. Sparks Mill. Co., Alton, Ill. ....	Suffield: Spencer Bros. ....
13274	Honest. David Stott, Detroit .....	Suffield: Arthur Sikes .....
13208	..... Valier & Spies Mill. Co., Marine, Ill. ....	Torrington: R. W. Jennings .....
13399	Farmers' Favorite. Valley City Mill. Co., Grand Rapids, Ill. ....	Danielson: Quinnebaug Mills ..
13278	..... Zenith Mills, Kansas City .....	Thompsonville: H. K. Brainard ..
13295	..... Abner Hendee, New Haven* .....	Colchester: E. F. Strong .....
13242	..... Henry Russell, Albany .....	New Hartford: New Hartford Elevator Co. ....
13001	..... " " .....	New Haven: R. G. Davis .....
13275	W. S. M. Chas. M. Cox Co., Boston* .....	Suffield: Arthur Sikes .....
13016	W. S. M. " " .....	New Haven: J. T. Benham Est. ....
		Average of these 42 analyses ..
		Average digestible .....
<i>Mixed Feed from Spring Wheat.</i>		
13013	Columbia. Chas. M. Cox Co., Boston .....	New Haven: J. T. Benham Est. ....
13074	..... " " " " .....	Guilford: G. F. Walter .....
13402	Commander. Gregory, Cook & Co., Commander Mills, Duluth, Minn. ....	Putnam: F. M. Cole & Co. ....
13287	Royal. Brooks Elevator Co., Minneapolis .....	Wilimantic: E. A. Buck & Co. ....
13289	Minnesota Fancy Duchess. Rodney J. Hardy & Sons .....	Stafford Springs: G. L. Dennis ..
13044	Boston. Imperial Mill, Duluth, Minn. ....	Avon: W. G. Woodford & Co. ....
13073	" " " " .....	Guilford: G. F. Walter .....
13199	Pillsbury's Fancy. Pillsbury, Minneapolis .....	New Milford: F. R. Green .....
13192	Ben Hur. Royal Mill. Co., Minneapolis .....	Danbury: C. W. Keeler .....
13049	..... Thornton & Chase, Buffalo .....	Bristol: G. W. Eaton .....
13056	Washburn-Crosby's Superior. Washburn-Crosby Co., Washburn Mills, Minneapolis .....	Bristol: G. W. Eaton .....
13122	Superior. Washburn-Crosby Co., Washburn's Mills, Minneapolis .....	New Britain: C. W. Lines Co. ....
13140	..... Abner Hendee, New Haven* .....	Plainville: F. B. Newton .....
13144	W. S. M. American Cereal Co. ....	Plainville: G. W. Eaton .....
		Average of these 14 analyses ..
		Average digestible .....

\* Statement of Dealer.



## SAMPLED IN 1904.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Fat.)	
13394	10.16	5.18	15.37	6.23	58.62	4.44	\$26.00
13094	11.31	5.84	15.75	8.49	54.61	4.00	26.00
13163	11.48	5.89	15.44	8.41	54.61	4.17	26.00
13141	12.06	5.64	16.19	6.99	54.19	4.93	26.00
13382	9.98	5.07	15.50	6.19	58.77	4.49	25.00
13142	11.36	5.68	15.75	8.01	54.85	4.35	26.00
13106	11.24	6.02	15.69	7.41	54.90	4.74	27.00
13109	12.22	6.17	17.00	8.10	52.33	4.18	27.00
13253	9.82	5.65	16.19	8.03	55.59	4.72	26.00
13200	11.33	5.50	15.94	7.58	55.10	4.55	28.00
13135	11.81	5.50	16.06	8.44	53.90	4.29	26.00
13062	11.15	5.16	17.56	7.24	54.87	4.02	26.00
13267	10.00	6.04	17.19	7.28	55.18	4.31	26.00
13274	9.90	5.61	16.50	7.61	55.49	4.89	26.00
13208	10.59	5.54	16.37	6.21	57.04	4.25	25.00
13399	10.00	5.62	16.50	7.70	55.66	4.52	26.00
13278	9.98	6.28	16.50	8.74	53.58	4.92	23.00
13295	10.11	5.41	16.50	6.55	57.17	4.26	26.00
13242	10.24	4.59	15.37	6.60	58.87	4.33	28.00
13001	11.50	6.10	15.87	8.65	53.36	4.52	25.00
13275	10.05	5.45	16.25	7.59	56.04	4.62	26.00
13016	10.69	5.41	15.87	7.01	56.84	4.18	24.00
	<b>10.73</b>	<b>5.58</b>	<b>16.03</b>	<b>7.76</b>	<b>55.41</b>	<b>4.49</b>	<b>25.83</b>
	----	----	<b>12.82</b>	<b>1.94</b>	<b>43.22</b>	<b>3.50</b>	
13013	11.16	4.32	16.00	6.91	56.32	5.29	24.00
13074	11.63	4.29	16.12	7.47	55.79	4.70	26.00
13402	9.88	4.88	15.00	8.77	56.04	5.43	24.00
13287	9.97	4.92	15.12	9.06	56.63	4.30	27.00
13289	10.28	4.34	16.75	7.44	55.79	5.40	26.00
13044	12.70	5.06	17.06	8.54	52.71	3.93	26.00
13073	10.91	5.07	17.37	8.75	53.48	4.42	26.00
13199	10.26	5.05	16.87	7.19	56.00	4.63	28.00
13192	10.60	4.81	16.87	8.16	54.81	4.75	26.00
13049	11.20	5.13	17.19	7.95	53.84	4.69	27.00
13056	11.30	5.14	17.25	8.67	53.28	4.36	28.00
13122	11.01	4.92	16.31	8.75	54.12	4.89	25.00
13140	12.25	5.09	15.00	7.37	55.94	4.35	26.00
13144	12.64	5.17	15.00	7.80	55.15	4.24	26.00
	<b>11.13</b>	<b>4.87</b>	<b>16.28</b>	<b>8.06</b>	<b>54.99</b>	<b>4.67</b>	<b>26.07</b>
	----	----	<b>13.02</b>	<b>2.02</b>	<b>42.89</b>	<b>3.64</b>	

TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	BRAND.	RETAIL DEALER.
<b>MAIZE PRODUCTS.</b>		
<i>Corn Meal.</i>		
13116	Meal, A. Buffalo Cereal Co., Buffalo -----	Berlin: J. C. Lincoln -----
13117	" B. " " " -----	Berlin: J. C. Lincoln -----
<i>Corn Flour.</i>		
13241	----- Henry Russell, Albany * -----	New Hartford: New Hartford Elevator Co. -----
<i>Gluten Meal.</i>		
13196	Chicago Gluten Meal. Glucose Sugar Refining Co., Chicago -----	New Milford: F. R. Green ----
13217	" " " " " " -----	Winsted: F. Woodruff & Sons.
13240	" " " " " " -----	New Hartford: New Hartford Elevator Co. -----
		Guaranty -----
		Average of these 3 analyses --
		Average digestible -----
13256	Cream Gluten Meal. Ill. Sug. Refining Co., Chicago -----	Hartford: Daniels Mill Co. ---
13259	" " " " " " -----	Hartford: Smith, Northam & Co. -----
		Guaranty -----
		Average of these 2 analyses --
		Average digestible -----
<i>Gluten Feed.</i>		
13002	Buffalo Gluten Feed. Glucose Sugar Refining Co., Chicago -----	New Haven: R. G. Davis. ---
13014	" " " " " " *	New Haven: J. T. Benham Est.
13035	" " " " " " -----	South Norwalk: M. T. Hatch.
13040	" " " " " " -----	Stamford: Scofield & Miller---
13072	" " " " " " *	North Haven: Co-operative Feed Co. -----
13080	" " " " " " -----	Guilford: Morse & Landon ---
13093	" " " " " " -----	Hamden: I. W. Beers -----
13095	" " " " " " -----	Wallingford: E. E. Hall -----
13101	" " " " " " -----	Yalesville: W. T. McKenzie---
13123	" " " " " " -----	New Britain: C. W. Lines Co.
13137	" " " " " " -----	Plainville: F. B. Newton ----
13145	" " " " " " *	Plainville: G. W. Eaton -----
13152	" " " " " " -----	Derby: Peterson, Hendee Co. --
13165	" " " " " " -----	Westville: W. E. Warner & Bro.
13168	" " " " " " -----	Watertown: J. H. Taylor Co. --
13220	" " " " " " -----	Canaan: Ives & Pierce -----
13271	" " " " " " *	Suffield: Spencer Bros. -----
		Guaranty -----
		Average of these 17 analyses --
		Average digestible -----
13149	J. H. Gluten. Buffalo Mill & Eleva'r Co., Buffalo *	Middlefield: A. E. Miller -----
		Digestible -----
13236	----- Chapin & Co., Boston * -----	Collinsville: The Collinsville Grain Co. -----

\* Statement of Dealer.

## SAMPLED IN 1904.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Fat.)	
13116	14.29	1.26	8.56	1.20	72.06	2.63	\$26.00
13117	11.37	1.98	10.62	3.97	65.47	6.59	26.00
13241	13.08	0.61	5.75	0.45	77.65	2.46	29.00
13196	10.67	0.79	33.75	2.86	48.18	3.75	30.00
13217	8.60	1.64	32.50	2.95	51.00	3.31	28.00
13240	9.42	1.13	35.25	2.09	47.96	4.15	30.00
	9.56	1.19	38.0 33.83 29.77	2.63	49.05 44.15	3.0 3.74 3.52	29.33
13256	10.15	1.32	35.12	1.54	49.21	2.66	32.00
13259	7.46	1.62	34.62	2.34	49.24	4.72	32.00
	8.80	1.47	35.5 34.87 30.69	1.94	49.23 44.31	3.0 3.69 3.47	32.00
13002	10.64	2.09	24.94	6.70	51.54	4.09	25.00
13014	10.52	1.34	23.62	7.32	54.32	2.88	24.50
13035	10.29	1.03	21.12	7.70	57.18	2.68	27.00
13040	10.27	0.70	21.94	7.01	57.69	2.39	25.00
13072	8.97	2.09	25.62	7.27	53.19	2.86	25.00
13080	9.95	0.72	19.50	7.84	59.51	2.48	26.00
13093	9.83	2.69	25.56	7.64	51.58	2.70	25.00
13095	10.31	1.80	23.94	6.73	54.01	3.21	25.00
13101	10.74	2.04	25.00	6.90	51.74	3.58	26.00
13123	10.24	0.86	22.75	7.71	55.94	2.50	26.00
13137	9.59	0.80	21.87	6.84	58.32	2.58	27.00
13145	10.55	1.28	23.56	6.40	55.63	2.58	26.00
13152	11.07	0.90	21.75	7.09	56.90	2.29	27.00
13165	10.30	2.13	24.62	7.60	52.01	3.34	25.00
13168	9.92	0.90	21.25	8.08	57.46	2.39	26.00
13229	7.95	0.81	21.75	7.48	59.72	2.29	25.00
13271	8.87	1.85	21.75	6.20	57.12	4.21	26.00
			27.0-28.0			3.0	
	10.00	1.41	22.97 19.75	7.21 5.62	55.52 49.41	2.89 2.43	25.68
13149	9.59	0.64	17.06 14.67	10.46 8.16	59.12 52.62	3.13 2.63	22.00
13236	8.52	2.09	23.19	6.89	54.68	4.63	26.00

TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	BRAND.	RETAIL DEALER.
<b>MAIZE PRODUCTS—Continued.</b>		
<i>Gluten Feed.</i>		
12997	Globe Gluten Feed. N. Y. Glucose Co., Edge- water, N. J. ....	<i>New Haven</i> : R. G. Davis .....
13022	" " " " " " " " *	<i>Clintonville</i> : S. A. Smith & Son .....
13071	" " " " " " " " *	<i>North Haven</i> : Co-operative Feed Co. ....
13086	" " " " " " " " *	<i>Branford</i> : S. V. Osborn .....
13104	" " " " " " " " *	<i>Meriden</i> : August Grulich .....
13105	" " " " " " " " *	<i>Meriden</i> : Meriden Feed Co. ....
13113	" " " " " " " " *	<i>Berlin</i> : J. C. Lincoln .....
13120	" " " " " " " " *	<i>New Britain</i> : Hugh Reynolds .....
13156	" " " " " " " " *	<i>Ansonia</i> : Ansonia Flour & Grain Co. ....
13158	" " " " " " " " *	<i>Ansonia</i> : Ansonia Flour & Grain Co. ....
13162	" " " " " " " " *	<i>Westville</i> : W. E. Warner & Bro. ....
13182	" " " " " " " " *	<i>Thomaston</i> : L. E. Blackmer .....
13203	" " " " " " " " *	<i>Middletown</i> : Meech & Stoddard .....
13234	" " " " " " " " *	<i>Unionville</i> : S. Richards .....
13288	" " " " " " " " *	<i>Willimantic</i> : H. A. Bugbee .....
		Guaranty .....
		Average of these 15 analyses ..
		Average digestible .....
13053	Pekin Gluten. Ill. Sugar Refining Co., Chicago..	<i>Bristol</i> : G. W. Eaton .....
		Guaranty .....
		Digestible .....
13260	Queen Gluten Feed. Nat'l Starch Co., Chicago..	<i>Hartford</i> : Smith, Northam & Co. ....
		Guaranty .....
		Digestible .....
13224	Warner's Gluten Feed. Waukegan, Ill. ....	<i>Winsted</i> : Balch & Platt .....
		Digestible .....
<i>Hominy Feed.</i>		
13103	Hominy Feed. American Hom. Co., Indianapolis	<i>Meriden</i> : August Grulich .....
13129	" " " " " " " " *	<i>Plantsville</i> : T. B. Atwater .....
		Guaranty .....
		Average of these 2 analyses ..
		Average digestible .....
12980	Hominy Feed. Buffalo Cereal Co., Buffalo. ....	<i>New London</i> : P. Schwartz .....
13032	" " " " " " " " *	<i>South Norwalk</i> : M. T. Hatch ..
13060	" " " " " " " " *	<i>Bristol</i> : W. O. Goodsell .....
13111	" " " " " " " " *	<i>Meriden</i> : Meriden Grain & Feed Co. ....
13181	" " " " " " " " *	<i>Thomaston</i> : L. E. Blackmer .....
13393	" " " " " " " " *	<i>Plainfield</i> : Waldo Tillinghast ..
		Guaranty .....
		Average of these 6 analyses ..
		Average digestible .....

\* Statement of Dealer.

## SAMPLED IN 1904.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Fat.)	
12997	9.60	2.50	26.44	8.03	49.95	3.48	\$25.00
13022	6.34	2.55	27.19	7.86	52.92	3.14	25.00
13071	9.21	1.87	26.59	7.64	50.00	3.79	25.00
13086	9.91	2.21	26.87	7.64	49.42	3.95	26.00
13104	10.37	2.25	25.50	7.85	50.46	3.57	26.00
13105	9.28	2.47	27.69	6.84	51.24	2.48	27.00
13113	9.55	1.91	25.75	7.98	51.65	3.16	26.00
13120	10.93	1.25	25.75	7.43	51.99	2.65	26.00
13156	10.76	2.10	29.00	6.63	48.92	2.59	25.00
13158	9.34	2.04	26.37	7.69	50.65	3.91	25.00
13162	9.69	2.09	26.25	7.69	50.74	3.54	25.00
13182	8.43	2.35	27.44	7.39	50.89	3.50	27.00
13203	9.04	2.07	26.44	7.61	51.47	3.37	26.00
13234	8.57	2.25	27.62	8.11	50.23	3.22	27.00
13288	8.24	1.78	26.37	8.08	51.99	3.54	26.00
			27.0			3.0	
	9.28	2.11	26.75	7.63	50.90	3.33	25.80
			23.01	5.95	45.30	2.80	
13053	9.15	1.04	26.25	7.56	52.54	3.46	27.00
			28.0			3.0	
			22.58	5.90	46.76	2.91	
13260	8.77	0.91	22.12	7.20	58.75	2.25	27.00
			25.0			2.9	
			19.02	5.62	52.29	1.89	
13224	10.00	1.09	23.37	7.03	56.01	2.50	28.00
			20.10	5.48	49.85	2.10	
13103	8.53	2.85	9.69	8.21	62.94	7.78	26.00
13129	9.12	2.81	10.87	3.99	64.25	8.96	26.00
			10.0			7.0	
	8.83	2.83	10.28	6.10	63.59	8.37	26.00
			6.99		60.41	7.70	
12980	9.89	2.37	10.00	3.71	66.53	7.50	26.00
13032	12.29	2.11	9.44	3.71	65.74	6.71	27.00
13060	10.93	2.32	10.62	4.09	64.31	7.73	26.00
13111	10.81	2.34	10.25	4.06	64.60	7.94	27.00
13181	10.29	2.28	10.00	4.01	65.86	7.56	26.00
13393	10.06	2.09	9.81	3.25	67.91	6.88	27.00
			10.5			8.5	
	10.71	2.25	10.02	3.81	65.82	7.39	26.50
			6.81		62.53	6.80	



TABLE IV.—ANALYSES OF COMMERCIAL FEEDS.

Station No.	BRAND.	RETAIL DEALER.
MAIZE PRODUCTS—Continued.		
<i>Hominy Feed.</i>		
12986	C. W. Campbell & Co., Westerly, R. I.*	Stonington: S. H. Chesebro---
12989	The Coles Co., Middletown*	East Hampton: R. H. Hall---
12979	Hominy Chop, Niagara. Chapin & Co., Boston*	New London: E. H. Caulkins---
13198	" Green Diamond. " " " "	New Milford: F. R. Green---
13269	" " " " " "	Suffield: Spencer Bros. -----
13018	Hominy Feed, Wirthmore. C. M. Cox Co., Boston.	New Haven: J. T. Benham Est.
13099	" " " " " "	Wallingford: E. E. Hall-----
13102	" " " " " *	Yalesville: W. T. McKenzie --
13138	" " " " " *	Plainville: F. B. Newton -----
13147	" " " " " *	Plainville: G. W. Eaton -----
13164	" " " " " *	Westville: W. E. Warner & Bro..
13189	" " " " " "	Danbury: F. C. Benjamin & Co.
		Guaranty -----
		Average of these 7 analyses ---
		Average digestible-----
13081	Hominy, Standard. Chas. M. Cox Co., Boston*	Guilford: Morse & Landon ---
13045	L. C. Daniels Mill Co., Hartford*-----	Avon: W. G. Woodford & Co.
13221	Hominy Feed. Hunter Bros. Mill Co., St. Louis	Winsted: F. Woodruff & Son---
13281	" " " " " "	Rockville: Edward White -----
		Guaranty -----
		Average of these 2 analyses ---
		Average digestible-----
13017	Hominy Chop, Steam-cooked Star. Miner Hillard Mill. Co., Wilkesbarre, Pa. -----	New Haven: J. T. Benham Estate-----
13059	Hominy Meal. Miner Hillard Mill. Co. Wilkesbarre, Pa.*-----	Bristol: G. W. Eaton -----
13155	Hominy Feed, Steam-cooked. Miner Hillard Mill. Co., Wilkesbarre -----	Ansonia: Ansonia Flour and Grain Co.-----
13175	Miner Hillard Mill. Co., Wilkesbarre*	Waterbury: The Platt Mill Co.
13252	" " " " " *	Hartford: Daniels Mill Co.-----
		Guaranty -----
		Average of these 5 analyses ---
		Average digestible-----
13023	Hominy Chop. Wm. M. Payne & Son, New York	Clintonville: S. A. Smith & Son
13041	" " " " " *	Stamford: Scofield & Miller---
13091	" " " " " *	Hamden: I. W. Beers-----
13205	" " " " " *	Middletown: Meech & Stoddard
		Guaranty -----
		Average of these 4 analyses ---
		Average digestible-----
13294	Hominy. Geo. B. Robinson, New York*-----	Colchester: E. F. Strong -----
13396	" Chop, Blue Ribbon. J. E. Soper & Co., Boston -----	Danielson: Young Bros. Co.---
13391	Hominy Feed. The Toledo Elev. Co., Toledo, O.	Jewett City: J. E. Leonard & Son
13251	" Wilson & Eaton, Amenia, New York* --	Hartford: L. C. Daniels Grain Co.-----
		Average of 37 analyses of Hominy feed -----
		Average digestible-----

\* Statement of Dealer.

## SAMPLED IN 1904.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Fat.)	
12986	8.41	2.45	9.62	6.22	66.19	7.11	\$26.00
12989	6.01	2.75	10.62	4.01	67.82	8.79	26.00
12979	8.81	3.13	10.56	4.44	64.68	8.38	25.00
13198	8.60	2.43	9.25	7.63	65.04	7.05	26.00
13269	9.30	2.73	9.50	6.38	65.09	7.00	26.00
13018	10.59	2.13	9.87	3.49	67.48	6.44	25.00
13099	9.23	2.43	9.25	7.36	65.36	6.37	25.00
13102	9.06	3.12	10.37	4.71	63.97	8.77	25.00
13138	10.68	2.83	10.94	5.29	61.58	8.68	27.00
13147	11.28	2.71	10.94	4.94	62.16	7.97	27.00
13164	10.69	2.62	10.75	4.19	63.47	8.28	25.00
13189	8.85	2.75	10.62	5.13	63.08	9.57	26.00
	-----	-----	10.0	-----	-----	7.0	-----
	10.05	2.66	10.39	5.02	63.87	8.01	25.86
	-----	-----	7.07	-----	60.68	7.37	-----
13081	9.97	2.44	10.75	4.92	64.46	7.46	25.00
13045	10.88	2.05	10.12	3.56	67.06	6.33	25.00
13221	7.32	3.18	10.87	5.04	64.67	8.92	26.00
13281	9.58	2.55	10.50	3.59	65.53	8.25	26.00
	-----	-----	11.0	-----	-----	7.7	-----
	8.45	2.87	10.68	4.32	65.10	8.58	26.00
	-----	-----	7.26	-----	61.85	7.89	-----
13017	11.73	1.80	9.19	3.81	69.90	3.57	24.00
13059	9.42	2.28	10.56	1.74	69.45	6.55	28.00
13155	11.77	1.92	9.75	2.80	68.01	5.75	25.00
13175	9.47	2.89	10.94	4.45	63.15	9.10	24.00
13252	8.82	2.56	11.06	2.01	67.64	7.91	28.00
	-----	-----	9.0	-----	-----	6.0	-----
	10.24	2.29	10.30	2.96	67.63	6.58	25.80
	-----	-----	7.00	-----	64.25	6.05	-----
13023	9.74	2.47	11.00	3.92	65.08	7.79	26.00
13041	10.48	2.47	10.69	4.27	64.21	7.88	26.00
13091	9.84	2.45	10.81	4.24	65.16	7.50	26.00
13205	9.56	2.39	10.87	3.94	65.60	7.64	25.00
	-----	-----	-----	-----	-----	-----	-----
	9.91	2.45	10.84	4.09	65.01	7.70	25.75
	-----	-----	7.37	-----	61.76	7.08	-----
13294	9.47	3.03	10.69	4.62	62.93	9.26	25.00
13396	9.70	2.50	10.69	4.30	64.91	7.90	25.00
13391	9.33	2.64	9.19	7.86	64.22	6.76	26.00
13251	7.70	2.55	9.37	8.17	64.94	7.27	26.00
	-----	-----	-----	-----	-----	-----	-----
	9.68	2.53	10.27	4.65	65.27	7.60	25.84
	-----	-----	6.98	-----	62.01	6.99	-----

TABLE IV.—ANALYSES OF COMMERCIAL FEEDS.

Station No.	BRAND.		RETAIL DEALER.
RYE PRODUCTS.			
13015	Rye Feed.	Miner Hillard Mill Co., Wilkesbarre*	New Haven: J. T. Benham Est.
13030	Rye Bran.	Buffalo Cereal Co., New York*-----	Bridgeport: Wm. M. Terry & Co.
13070	"	Abner Hendee, New Haven*-----	North Haven: Co-operative Feed Co.-----
13082	"	Morse & Landon, Guilford-----	Guilford: Morse & Landon-----
13092	"	I. W. Beers, Hamden-----	Hamden: I. W. Beers-----
13100	Rye Feed.	E. E. Hall, Wallingford-----	Wallingford: E. E. Hall-----
13087	"	S. V. Osborn, Branford-----	Branford: S. V. Osborn-----
			Average of these 7 analyses-----
			Average digestible-----
BARLEY PRODUCTS.			
13000	Malt Sprouts.	D. W. Ranlet, Boston-----	New Haven: R. G. Davis-----
13021	"	John Ryan, Port Chester, New York-----	Clintonville: S. A. Smith & Son-----
13186	"	Chase Grain Co., New Canaan, Conn.*-----	Danbury: F. C. Benjamin & Co.
13276	"	Chas. M. Cox Co., Boston.*-----	Suffield: Arthur Sikes-----
			Average of these 4 analyses-----
			Average digestible-----
Dried Distillery Grains.			
13048	Ajax Flakes-----		Bristol: G. W. Eaton-----
13216	"-----		Torrington: F. W. Wadhams-----
13262	"-----	Chapin & Co., Boston-----	Hartford: Smith, Northam & Co.
13270	"-----	"-----	Suffield: Spencer Bros.-----
			Guaranty-----
			Average of these 4 analyses-----
			Average digestible-----
OAT PRODUCTS.			
13058	Ground Oats.	G. W. Eaton, Bristol-----	Bristol: G. W. Eaton-----
12999	Oat Feed.	Ogilvie Mills, Canada*-----	New Haven: R. G. Davis-----
BUCKWHEAT PRODUCTS.			
13397	Buckwheat Middlings.	Quinnebaug Mills, Danielson, Conn.-----	Danielson: Quinnebaug Mills-----
MISCELLANEOUS MIXED FEEDS.			
13161	Provender.	Ansonia Flour & Grain Co., Ansonia-----	Ansonia: Ansonia Flour & Grain Co.-----
13130	"	F. B. Atwater, Plantsville-----	Plantsville: F. B. Atwater-----
12978	"	E. W. Bailey, Montpelier, Vt.*-----	New London: E. H. Caulkins-----
13225	"	Balch & Platt, Winsted-----	Winsted: Balch & Platt-----
13390	"	A. A. Beckwith, Norwich-----	Norwich: A. A. Beckwith-----
13089	"	I. W. Beers, Hamden-----	Hamden: I. W. Beers-----
13401	"	Bosworth Bros., Putnam-----	Putnam: Bosworth Bros.-----
13277	"	H. K. Brainard, Thompsonville-----	Thompsonville: H. K. Brainard-----
12987	"	C. W. Campbell & Co., Westerly, R. I.-----	Stonington: S. H. Chesebro-----
13237	"	Collinsville Grain Co., Collinsville-----	Collinsville: The Collinsville Grain Co.-----
13246	"	W. J. Cox, East Hartford-----	East Hartford: W. J. Cox-----
12976	"	Cutler Co., North Wilbraham, Mass.*-----	Norwich: Norwich Grain Co.-----

\* Statement of Dealer.

## SAMPLED IN 1904.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Fat.)	
13015	11.23	3.57	16.12	3.85	61.93	3.30	\$27.00
13030	11.43	3.94	15.87	3.93	61.68	3.15	28.00
13070	12.02	3.55	16.12	5.50	59.47	3.34	28.00
13082	7.74	3.22	14.12	3.66	68.41	2.82	25.00
13002	12.56	3.78	16.19	5.28	59.08	3.11	30.00
13100	12.09	3.79	15.62	4.18	61.50	2.82	28.00
13087	13.68	1.92	10.56	1.75	70.37	1.72	30.00
	11.54	3.40	14.94	4.02	63.20	2.90	28.00
	----	----	12.55	----	58.14	1.86	----
13000	10.18	5.79	24.31	11.25	47.03	1.44	21.00
13021	12.20	5.55	20.62	12.15	47.24	2.24	20.00
13186	11.25	5.68	26.12	12.28	43.44	1.23	20.00
13276	9.30	5.74	27.37	12.69	43.73	1.17	20.00
	10.73	5.69	24.61	12.09	45.36	1.52	20.25
	----	----	19.69	3.99	30.84	1.52	----
13048	8.00	2.06	31.75	11.62	32.31	14.26	28.00
13216	7.25	1.93	32.37	13.10	32.51	12.84	28.00
13262	5.93	2.13	32.12	12.89	32.08	14.85	28.00
13270	6.24	2.63	32.12	12.43	32.00	14.58	27.00
			33.00			12.0	
	6.85	2.18	32.09	12.53	32.22	14.13	27.75
	----	----	25.35	6.52	18.69	12.86	----
13058	11.08	2.85	10.87	8.97	62.59	3.64	39.00
12999	7.67	5.32	7.12	22.87	53.43	3.59	18.00
13397	13.65	5.54	30.75	7.64	34.05	8.37	23.00
13161	11.69	2.17	10.25	4.68	66.92	4.29	28.00
13130	12.31	1.86	9.87	4.11	67.60	4.25	27.00
12978	11.05	2.15	9.62	5.21	67.96	4.01	30.00
13225	11.70	1.68	9.57	3.47	69.46	4.12	28.00
13390	11.97	1.85	9.94	4.08	68.52	3.64	27.00
13080	12.73	1.92	9.62	6.51	65.17	4.05	26.00
13401	11.53	1.88	9.25	4.38	68.64	4.32	26.00
13277	11.30	1.98	9.50	4.90	68.07	4.25	28.00
12987	10.55	1.83	9.44	4.05	69.89	4.24	28.00
13237	11.00	2.12	9.62	4.73	67.14	4.49	27.00
13246	11.45	1.66	9.50	3.32	70.13	3.94	28.00
12976	11.19	2.24	9.62	4.54	68.03	4.38	27.00

TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	BRAND.	RETAIL DEALER.
MISCELLANEOUS MIXED FEEDS— <i>Continued.</i>		
13258	<i>Provender.</i> Daniels Mill Co., Hartford .....	<i>Hartford:</i> Daniels Mill Co. ....
13249	" L. C. Daniels Grain Co., Hartford .....	<i>Hartford:</i> L. C. Daniels Grain Co. ....
13292	" Geo. L. Dennis, Stafford Springs .....	<i>Stafford Springs:</i> G. L. Dennis .....
13178	" D. L. Dickinson, Waterbury .....	<i>Waterbury:</i> D. L. Dickinson & Son .....
13057	" G. W. Eaton, Bristol .....	<i>Bristol:</i> G. W. Eaton .....
13146	" G. W. Eaton, Plainville .....	<i>Plainville:</i> G. W. Eaton .....
13066	" W. O. Goodsell, Bristol .....	<i>Bristol:</i> W. O. Goodsell .....
13097	" E. E. Hall, Wallingford .....	<i>Wallingford:</i> E. E. Hall .....
13153	" Peterson, Hendee Co., Derby .....	<i>Derby:</i> Peterson, Hendee Co. ....
13230	" Ives & Pierce, Canaan .....	<i>Canaan:</i> Ives & Pierce .....
13266	" C. F. Lewis, Windsor .....	<i>Windsor:</i> C. F. Lewis .....
13127	" C. W. Lines Co., New Britain .....	<i>New Britain:</i> C. W. Lines Co. ....
13385	" A. R. Manning, Yantic .....	<i>Yantic:</i> A. R. Manning .....
13204	" Meech & Stoddard, Middletown .....	<i>Middletown:</i> Meech & Stoddard .....
13078	" Morse & Landon, Guilford .....	<i>Guilford:</i> Morse & Landon .....
13243	" New Hartford Elev. Co., New Hartford .....	<i>New Hartford:</i> New Hartford Elevator Co. ....
13139	" F. B. Newton, Plainville .....	<i>Plainville:</i> F. B. Newton .....
13083	" S. V. Osborn, Branford .....	<i>Branford:</i> S. V. Osborn .....
13398	" Quinnebaug Mills, Danielson .....	<i>Danielson:</i> Quinnebaug Mills .....
13233	" S. Richards, Unionville .....	<i>Unionville:</i> S. Richards .....
13238	" D. B. Smith, Pine Meadow .....	<i>Pine Meadow:</i> D. B. Smith .....
13264	" Smith, Northam & Co., Hartford .....	<i>Hartford:</i> Smith, Northam & Co. ....
13133	" Southington Lumber & Feed Co., Southington .....	<i>Southington:</i> Southington Lumber & Feed Co. ....
13211	" E. H. Talcott, Torrington .....	<i>Torrington:</i> E. H. Talcott .....
13169	" John H. Taylor Co., Watertown .....	<i>Watertown:</i> John H. Taylor Co. ....
13215	" F. U. Wadhams, Torrington .....	<i>Torrington:</i> F. U. Wadhams .....
13046	" W. G. Woodford & Co., Avon .....	<i>Avon:</i> W. G. Woodford & Co. ....
13219	" F. Woodruff & Sons .....	<i>Winsted:</i> F. Woodruff & Sons .....
		Average of these 40 analyses ..
		Average digestible .....
12981	<i>Victor Corn and Oat Feed.</i> American Cereal Co. ..	<i>New London:</i> P. Schwartz .....
13033	" " " " " "	<i>South Norwalk:</i> M. T. Hatch .....
13069	" " " " " "	<i>North Haven:</i> Co-operative Feed Co. ....
13098	" " " " " "	<i>Wallingford:</i> E. E. Hall .....
13132	" " " " " "	<i>Southington:</i> Southington Lumber and Feed Co. ....
		Guaranty .....
		Average of these 5 analyses ..
		Average digestible .....
12996	<i>Corn and Oat Chop.</i> Buffalo Cereal Co., Buffalo ..	<i>New Haven:</i> R. G. Davis .....
13183	" " " " " "	<i>Thomaston:</i> L. E. Blackmer .....
		Guaranty .....
		Average of these 2 analyses ..
		Average digestible .....



## SAMPLED IN 1904.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Fat.)	
13258	11.59	1.88	9.12	5.60	67.97	3.84	\$28.00
13249	10.43	2.21	10.00	6.11	67.05	4.20	28.00
13292	12.61	1.58	9.12	3.28	69.45	3.96	27.00
13178	11.30	1.80	9.62	4.01	69.10	4.17	26.00
13057	12.51	2.01	9.62	4.37	67.94	3.55	30.00
13146	12.32	1.95	9.44	4.45	66.98	4.86	28.00
13066	11.25	2.50	11.37	7.56	62.73	4.59	28.90
13097	13.11	1.67	9.00	4.30	68.98	2.94	28.00
13153	12.93	1.69	9.19	3.69	68.47	4.03	28.00
13230	10.59	2.27	9.94	6.41	66.17	4.62	27.00
13266	12.24	1.57	9.00	2.21	70.90	4.08	28.00
13127	12.76	2.34	9.00	6.48	65.75	3.67	28.00
13385	11.08	2.00	9.37	5.16	68.19	4.20	27.00
13204	11.55	1.75	9.63	5.44	68.15	4.05	29.00
13078	12.39	1.95	9.56	5.35	66.65	4.10	28.00
13243	10.86	2.11	9.31	4.71	68.89	4.12	28.00
13139	11.99	2.03	9.37	4.69	67.61	4.31	28.00
13083	12.84	2.13	9.87	5.42	64.85	4.89	28.00
13398	11.53	1.74	9.50	3.64	69.76	3.83	27.00
13233	9.87	2.47	9.81	6.53	66.57	4.75	27.00
13238	11.65	1.80	9.75	3.31	69.58	3.91	28.00
13264	11.28	1.73	9.56	4.31	69.11	4.01	28.00
13133	12.40	1.75	9.31	3.96	68.56	4.02	27.00
13211	11.73	1.86	9.62	3.95	69.14	3.70	28.00
13169	12.21	2.05	9.50	4.64	67.64	3.96	29.00
13215	10.86	2.22	9.69	5.59	67.51	4.13	28.00
13046	12.70	1.70	9.37	3.99	68.17	4.07	27.00
13219	11.38	1.86	9.37	4.52	68.67	4.20	28.00
	11.73	1.95	9.56	4.69	67.95	4.12	27.73
	----	----	6.79	2.25	56.40	3.58	
12981	8.87	4.16	8.12	11.75	63.10	4.00	25.00
13033	9.61	3.52	8.19	11.40	63.12	4.16	27.00
13069	9.71	4.10	8.31	12.32	61.42	4.14	25.00
13098	10.38	2.96	8.37	13.17	61.90	3.22	25.00
13132	9.59	3.74	8.31	12.69	61.54	4.13	25.00
			9.0			4.0	
	9.63	3.70	8.26	12.27	62.21	3.93	25.40
	----	----	5.86	5.89	51.63	3.42	
12996	10.53	3.70	8.19	12.89	61.17	3.52	24.00
13183	9.25	3.61	8.25	12.01	62.24	4.64	28.00
			8.0			4.0	
	9.89	3.66	8.22	12.45	61.70	4.08	26.00
	----	----	5.84	5.98	51.21	3.55	

TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	BRAND.	RETAIL DEALER.
MISCELLANEOUS MIXED FEEDS— <i>Continued.</i> <i>Miscellaneous Corn and Oat Feeds.</i>		
13195	<i>De-Fi Corn and Oat Feed.</i> Ellsworth & Co., Buffalo	<i>Danbury:</i> C. W. Keeler..... Guaranty ..... Digestible .....
13177	<i>Dickinson's Stock Food</i> .....	<i>Waterbury:</i> D. L. Dickinson & Son ..... Guaranty ..... Digestible .....
13007	<i>Boss Corn and Oat Feed.</i> The Great Western Cereal Co., Chicago .....	<i>New Haven:</i> Abner Hendee... Guaranty ..... Digestible .....
13235	<i>Haskell's Stock Feed.</i> W. H. Haskell & Co., Toledo, Ohio .....	<i>Unionville:</i> S. Richards..... Guaranty ..... Digestible .....
13293	<i>Monarch Chop Feed.</i> Husted Mill & Elevator Co., Buffalo .....	<i>Colchester:</i> E. F. Strong..... Guaranty ..... Digestible .....
13191	<i>Lenox Stock Feed.</i> The Strong, Lefferts Co., Pro- duce Exchange, N. Y. ....	<i>Danbury:</i> F. C. Benjamin & Co. Guaranty ..... Digestible .....
CORN AND WHEAT FEEDS.		
13012	<i>Colonial Middlings.</i> Miner Hillard Milling Co., Wilkesbarre .....	<i>New Haven:</i> J. T. Benham Est.
13126	<i>Colonial Middlings.</i> Miner Hillard Milling Co., Wilkesbarre .....	<i>New Britain:</i> C. W. Lines Co. Guaranty ..... Average of these 2 analyses ..
13290	<i>"Dairy" Mixed Feed.</i> Jennings & Fulton, Boston	<i>Stafford Springs:</i> G. L. Dennis. Guaranty .....
13395	<i>"Jersey" Mixed Feed.</i> Indiana Milling Co., Terre Haute .....	<i>Danielson:</i> Young Bros. Co. ..
13231	<i>Wheat and Oats.</i> S. Richards, Unionville.....	<i>Unionville:</i> S. Richards.....
CORN, OATS AND BARLEY.		
13019	<i>Schumacher's Stock Feed.</i> American Cereal Co....	<i>New Haven:</i> J. T. Benham Est.
13039	" " " "	<i>Stamford:</i> Scofield & Miller...
13051	" " " "	<i>Bristol:</i> G. W. Eaton .....
13115	" " " "	<i>Berlin:</i> J. C. Lincoln .....
		Guaranty ..... Average of these 4 analyses ..

## SAMPLED IN 1904.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Fat.)	
13195	8.21 ----- -----	3.84 ----- -----	8.75 8.3 6.21	14.71 ----- 7.06	61.19 ----- 50.79	3.30 3.0 2.87	\$25.00
13177	8.99 ----- -----	4.06 ----- -----	8.62 10.0 6.12	12.44 ----- 5.97	61.44 ----- 50.99	4.45 4.1 3.87	24.00
13007	10.55 ----- -----	3.64 ----- -----	8.87 9.0 6.30	11.30 ----- 5.42	60.21 ----- 49.97	5.43 4.0 4.72	24.00
13235	9.03 ----- -----	2.84 ----- -----	9.62 10.0 6.83	8.94 ----- 4.29	63.57 ----- 52.76	6.00 6.3 5.22	27.00
13193	9.36 ----- -----	2.90 ----- -----	7.25 8.1 5.15	12.90 ----- 6.19	64.40 ----- 53.45	3.19 4.2 2.78	25.00
13191	9.22 ----- -----	3.44 ----- -----	7.50 9.9 5.33	14.18 ----- 6.81	61.94 ----- 51.41	3.72 3.3 3.24	26.00
13012	10.78	3.58	13.12	5.73	60.44	6.35	28.00
13126	10.41 ----- 10.59	3.88 ----- 3.73	14.37 13.5 13.74	6.36 ----- 6.05	59.11 ----- 59.78	5.87 6.75 6.11	28.00  28.00
13290	9.00 -----	4.58 -----	11.50 12.05	15.23 -----	56.47 -----	3.22 3.20	25.00
13395	8.93 -----	4.54 -----	12.87 12.05	13.64 -----	56.54 -----	3.48 3.25	24.00
13231	9.57	3.62	12.87	7.43	61.91	4.60	26.00
13019	10.41	3.16	10.60	9.43	63.12	3.19	26.00
13039	12.15	3.30	10.25	9.04	62.64	2.62	28.00
13051	9.66	3.94	10.94	10.66	60.25	4.55	29.00
13115	9.76 ----- 10.49	4.24 ----- 3.66	11.19 13.0 10.77	11.14 ----- 10.07	59.12 ----- 61.28	4.55 5.0 3.73	27.00  27.50

TABLE IV.—ANALYSES OF COMMERCIAL FEEDS.

Station No.	BRAND.	RETAIL DEALER.
PROPRIETARY HORSE FEEDS.		
12998	<i>Sucrene Horse Feed.</i> American Mill. Co., Chicago	<i>New Haven:</i> R. G. Davis .....
13157	" " " " " "	<i>Ansonia:</i> Ansonia Flour & Grain Co. ....
		Guaranty .....
		Average of these 2 analyses ..
13026	<i>Horse Feed.</i> Buffalo Cereal Co., Buffalo .....	<i>Bridgeport:</i> Wm. M. Terry & Co.
13114	" " " " " "	<i>Berlin:</i> J. C. Lincoln .....
		Guaranty .....
		Average of these 2 analyses ..
13008	<i>H-O Horse Feed.</i> H-O Co., Buffalo .....	<i>New Haven:</i> Abner Hendee...
13042	" " " " " "	<i>Stamford:</i> Scofield & Miller...
13076	" " " " " "	<i>Guilford:</i> G. F. Walter.....
		Guaranty .....
		Average of these 3 analyses ..
		Average digestible .....
13179	<i>N-E-S-F. New England Stock Feed.</i> Hoco Mills, Buffalo.....	<i>Waterbury:</i> I. A. Spencer .....
13187	" " " " " "	<i>Danbury:</i> F. C. Benjamin & Co.
		Guaranty .....
		Average of these 2 analyses ..
PROPRIETARY DAIRY AND STOCK FEEDS.		
12982	<i>Quaker Dairy Feed.</i> American Cereal Co. ....	<i>New London:</i> P. Schwartz.....
13043	" " " " " "	<i>Stamford:</i> W. L. Crabb .....
13084	" " " " " "	<i>Branford:</i> S. V. Osborn .....
13110	" " " " " "	<i>Meriden:</i> A. H. Cashen .....
13166	" " " " " "	<i>Watertown:</i> John H. Taylor Co.
		Guaranty .....
		Average of these 5 analyses ..
		Average digestible .....
13065	<i>Sucrene Dairy Feed.</i> American Mill. Co., Chicago	<i>Bristol:</i> W. O. Goodsell.....
13154	" " " " " "	<i>Ansonia:</i> Ansonia Flour & Grain Co. ....
		Guaranty .....
		Average of these 2 analyses ..
13176	<i>Blatchford's Calf Meal.</i> J. W. Barwell, Waukegan, Ill. ....	<i>Waterbury:</i> The Platt Mill Co.
		Guaranty .....
13009	<i>Blomo Feed.</i> Blomo Mfg. Co., New York .....	<i>New Haven:</i> Abner Hendee...
13077	" " " " " "	<i>Guilford:</i> G. F. Walter.....
		Guaranty .....
		Average of these 2 analyses ..

## SAMPLED IN 1904.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Fat.)	
12998	11.14	6.84	14.25	11.01	53.31	3.45	\$28.00
13157	11.19	5.80	13.62	9.98	56.98	2.43	27.00
	11.17	6.32	13.5	---	---	3.5	---
			13.94	10.49	55.14	2.94	27.50
13026	9.99	3.16	11.94	9.54	60.48	4.89	30.00
13114	10.17	3.28	11.50	10.41	59.94	4.70	28.00
			12.0	---	---	4.5	---
	10.08	3.22	11.72	9.98	60.21	4.79	29.00
13008	10.08	2.84	11.44	8.89	61.66	5.09	29.00
13042	11.41	2.89	11.62	9.21	60.14	4.73	30.00
13076	10.53	2.98	11.69	9.57	60.56	4.67	30.00
			12.0	---	---	4.5	---
	10.67	2.90	11.59	9.22	60.79	4.83	29.67
	----	----	8.58	3.23	48.02	4.06	---
13179	9.25	3.03	11.19	8.56	63.49	4.48	26.00
13187	10.33	2.84	11.06	7.51	63.61	4.65	26.00
			10.0	---	---	4.0	---
	9.79	2.93	11.13	8.03	63.55	4.57	26.00
12982	7.75	5.50	12.75	17.71	52.33	3.96	24.00
13043	10.25	5.61	11.81	16.53	52.39	3.41	25.00
13084	8.61	5.11	11.94	18.52	52.20	3.62	25.00
13110	9.48	4.61	12.81	17.20	52.51	3.39	25.00
13166	8.26	5.73	14.00	18.07	49.86	4.08	23.00
			14.0	---	---	3.5	---
	8.87	5.31	12.66	17.61	51.86	3.69	24.40
	----	----	9.87	7.22	36.30	3.17	---
13065	10.65	6.43	18.94	11.77	48.54	3.67	28.00
13154	10.14	5.91	18.19	11.94	50.19	3.63	26.00
			16.5	---	---	3.5	---
	10.39	6.17	18.59	11.85	49.37	3.65	27.00
13176	10.47	4.18	22.69	4.52	53.46	4.68	38.00
	---	----	25.00	----	----	5.0	---
13009	17.00	10.00	13.87	10.44	48.14	0.55	24.00
13077	16.64	9.83	14.06	11.71	47.02	0.74	24.00
			15.0	---	---	1.2	---
	16.82	9.92	13.97	11.07	47.58	0.64	24.00



TABLE IV.—ANALYSES OF COMMERCIAL FEEDS.

Station No.	BRAND.	RETAIL DEALER.
PROPRIETARY DAIRY AND STOCK FEEDS— <i>Continued.</i>		
13064	<i>Creamery Feed.</i> Buffalo Cereal Co., Buffalo.....	<i>Bristol:</i> W. O. Goodsell .....
13160	" " " " " .....	<i>Ansonia:</i> Ansonia Flour & Grain Co. ....
		Guaranty .....
		Average of these 2 analyses ..
13038	<i>H-O Dairy Feed.</i> H-O Company, Buffalo.....	<i>Stamford:</i> Scofield & Miller...
13188	" " " " " .....	<i>Danbury:</i> F. C. Benjamin & Co. ....
		Guaranty .....
		Average of these 2 analyses ..
		Average digestible.....
PROPRIETARY POULTRY FEEDS.		
13020	<i>American Poultry Food.</i> Am. Cereal Co., Chicago	<i>New Haven:</i> J. T. Benham Est.
13134	" " " " " .....	<i>Southington:</i> Southington Lumber and Feed Co. ....
		Guaranty .....
		Average of these 2 analyses ..
13029	<i>Poultry Feed.</i> Buffalo Cereal Co., Buffalo.....	<i>Bridgeport:</i> Wm. M. Terry & Co. ....
		Guaranty .....
13212	<i>Laying Food.</i> Cyphers Incubator Co., Buffalo ....	<i>Torrington:</i> F. U. Wadhams ..
		Guaranty .....
13011	<i>H-O Poultry Food.</i> H-O Company, Buffalo .....	<i>New Haven:</i> Abner Hendee...
13055	" " " " " .....	<i>Bristol:</i> G. W. Eaton .....
		Guaranty .....
		Average of these 2 analyses ..
ANIMAL MEAL AND BONE FOR POULTRY.		
12975	<i>Bowker's Animal Meal.</i> Bowker Co., New York ..	<i>Norwich:</i> Norwich Grain Co. ...
		Guaranty .....
13272	<i>Breck's Ground Beef Scrap.</i> J. Breck & Son, Boston	<i>Suffield:</i> Spencer Bros. ....
		Guaranty .....
13392	<i>Darling's Beef Scrap.</i> L. B. Darling Fertilizer Co.	<i>Jewett City:</i> J. E. Leonard & Son
		Guaranty .....
13257	<i>Frisbie's Beef Scraps.</i> L. T. Frisbie Co., Hartford	<i>Hartford:</i> Daniels Mill Co. ...
		Guaranty .....
13386	<i>Beef Scrap.</i> New England Fertilizer Co., Boston.	<i>Yantic:</i> A. R. Manning.....
		Guaranty .....
13282	<i>Swift's Bone and Meat Meal.</i> Lowell Fert. Co., Boston	<i>Rockville:</i> Edward White.....
		Guaranty .....

## SAMPLED IN 1904.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Fat.)	
13064	9.38	4.13	19.62	11.83	49.12	5.92	\$27.00
13160	10.04	3.32	18.81	10.93	51.78	5.12	28.00
	-----	-----	20.0	-----	-----	5.0	-----
	9.71	3.72	19.22	11.38	50.45	5.52	27.50
13038	9.88	3.44	17.37	12.62	50.57	6.12	29.00
13188	8.67	3.66	17.44	12.54	51.54	6.15	28.00
	-----	-----	18.0	-----	-----	4.5	-----
	9.27	3.55	17.41	12.58	51.06	6.13	28.50
	-----	-----	13.67	5.16	35.74	5.27	-----
13020	11.60	3.19	13.75	4.59	60.94	5.93	34.00
13134	11.16	3.10	13.87	4.86	62.48	4.53	33.00
	-----	-----	14.0	-----	-----	4.5	-----
	11.38	3.14	13.81	4.73	61.71	5.23	33.50
13029	11.29	3.04	17.62	5.12	59.32	3.61	32.00
	-----	-----	17.0	-----	-----	5.5	-----
13212	12.24	2.65	16.37	2.69	62.35	3.70	38.00
	-----	-----	15.0	-----	-----	5.0	-----
13011	10.95	2.90	17.50	5.62	57.10	5.93	37.00
13055	10.67	2.96	18.12	5.56	56.76	5.93	38.00
	-----	-----	17.0	-----	-----	5.5	-----
	10.81	2.93	17.81	5.59	56.93	5.93	37.50
12975	5.80	41.83	39.69	-----	-----	10.95	40.00
	-----	-----	38.0	-----	-----	5.0	-----
13272	9.49	24.66	45.62	-----	-----	20.18	45.00
	-----	-----	50.0	-----	-----	15.0	-----
13392	6.84	24.90	49.00	-----	-----	16.50	50.00
	-----	-----	50.0	-----	-----	16.0	-----
13257	7.67	34.76	40.69	-----	-----	13.58	50.00
	-----	-----	40.0	-----	-----	15.0	-----
13386	7.22	24.61	49.50	-----	-----	15.09	50.00
	-----	-----	40.0	-----	-----	15.0	-----
13282	6.62	30.59	46.69	-----	-----	11.93	45.00
	-----	-----	40.0	-----	-----	8.0	-----





University of  
Connecticut  
Libraries

---



39153028850313



